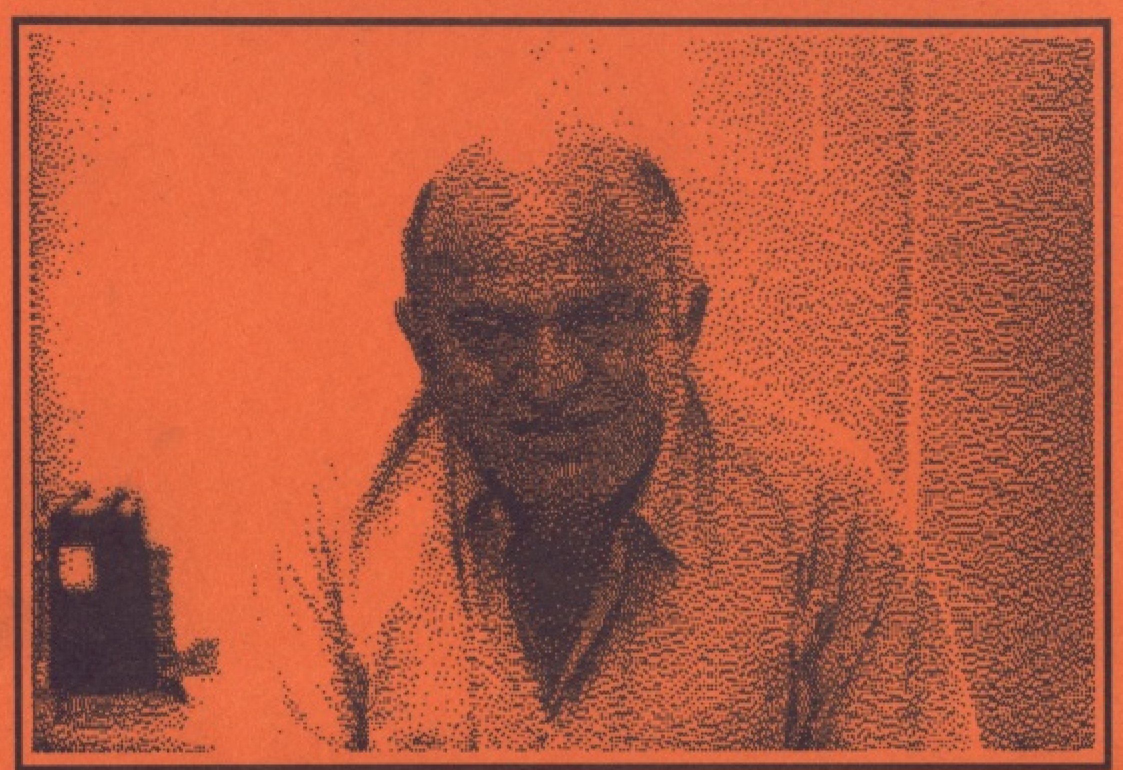
Computers? Didn't we used to sell them?



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This issue's ....

Thanks

Les Ellingham puts it all together and fills up the gaps but the real thanks goes to the following who made this issue possible

Sandy Ellingham who takes care of all the office work, advertising and mail order

For their regular contributions

John S Davison **Allan J. Palmer**
Paul Rixon **Stuart Murray**
Ann O'Driscoll

For their contributions this issue

John Foskett **Paul Hollins**
Andy Guillaume **Mike Fuller**
Doug Brock

Special thanks this issue to **Andy Guillaume** who seems to have a lot of things in this issue

APOLOGIES

I am still extremely poor in acknowledging contributions so I apologise to everyone who has sent in stuff and thought it has gone through the wormhole. The intention to reply to everyone is there but the time seems to drift by. If you have not heard, thank you and keep watching the mag, you might be surprised.

HOW IT'S DONE

PAGE 6 shows just what you can do with your Atari. NEW ATARI USER has always been created entirely with Atari equipment, initially on the XL but more lately with a Mega ST and other stuff, who needs PC's or Macs! Hardware includes a Mega ST2 (upgraded to 4Mb), SM125 Monitor, Supra 30Mb Hard Disk, a HP Laserjet III, Citizen 124D printer, Philips CM8833 monitor, 130XE, a couple of 1050 disk drives, 850 interface, NEC 8023 printer. Principal software used is Protext and Fleet Street Publisher 3.0. Other software includes Kermit, TariTalk, Turbo Basic and various custom written programs on the XL/XE. Articles submitted on XL/XE disks are transferred across to the ST via TARITALK. Programs are coded on the XE and printed out directly for pasting in after the typesetting is completed. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. Each page is output directly from Fleet Street to a HP Laserjet III which produces finished pages exactly as you see them. All that is left is to drop in the listings and photos.

Well, it's not quite as easy as that but you get the idea!

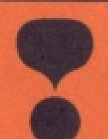
Inspiration

As I type I am listening to Sacred Spirit, a mix of Native American chants and modern music which I am sure you must have seen advertised on TV over Christmas. I am still trying to figure out who the album is by as it only credits 'The Fearsome Brave' but it is almost certainly by someone very well known who is probably under contract to another label. Sounds a bit like Mike Oldfield but bits of it sound very much like Enigma. Does anyone know? Main listening is still Kathy Mattea, nothing new, gotta pay the bills instead.

CONTRIBUTIONS

Without contributions from its readers, NEW ATARI USER would not be possible. PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it!

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'The Magazine for the Dedicated Atari User'

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CONTENTS

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Editorial copy date is 31st January

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Editorial

I had a letter this morning from a reader unhappy about the delay with these last couple of issues who suggested that I call it a day and get out while the going's good. He said that he would rather support NOSAUG and TWAUG, presumably on the basis that they can always guarantee to get their newsletters out on time. One of the problems in trying to publish a magazine to a high level on a regular schedule is that you stand to be shot down.

There are reasons for the delays in the past couple of issues indirectly connected to the magazine but the principal reason is that nobody can make a full time living out of publishing a magazine for the Atari any longer and other things have to be done to survive. The biggest problem that has arisen indirectly from the magazine is that when we gave up our office a couple of years ago, on expiry of the lease, the landlord decided to completely refurbish the premises and tried to get us to pay for it. Anyone who has leased commercial premises will know that this is not uncommon but the legal system in this country does not allow for right and wrong, it merely gives the greatest chance of victory to those with the most money. Despite having a limited amount of legal aid we simply had to give up the fight in the end and agree to a substantial payment which now has to be met every month. In effect any profits from the magazine are now going to some greedy lowlife who doesn't need the money and I have to do other work or starve.

There were times when I would sit up to the small hours, or even through the night, to complete an issue but time marches on and I am too old now and too worn down by the pressures to do that sort of thing. Each issue gets completed, hopefully at the same high level, but if it takes an extra couple of weeks, so be it. Joe Waters of Current Notes produced a fine magazine for as many years as I have done but it took a toll on his health and he had to call it a day. I don't intend to go the same way and if it means that I take it a little easier and one or two issues are a little late, that's the way it has to be.

Over the years I have had incredible support from many keen Atari users and the magazine has gained a huge number of friends who I have never met. People who regularly support the Accessory Shop, write letters of thanks and encouragement and send us Christmas cards. It is for them that the magazine continues to be published and will be for as long as it is possible. We have always had one or two detractors who have, for reasons best known to themselves, had it in for us over the years and we can afford to lose them providing the majority of you continue your fine support.

So there you are. Apologies for the delays but I believe that we still do a better job than anyone else in providing an ongoing source of support for the Atari community and I am not going to let the Jeremiahs dictate the future.

CONTRIBUTIONS AGAIN!

It's time for you to put pen to paper, or fingers to keyboard, once again and let us have some more fine articles and programs. Stocks are beginning to run down again and we like to be able to look two or three issues ahead to get a good balance.

As I have always said, if something is interesting to you it will be interesting to other Atari users, so write about and I'll do my best to get it published in New Atari User.

Les Ellingham

Extra

I wrote this editorial last year but it never got used as something else to say came along. Having read it again it still seems quite interesting so, for the very first time, I am treating you to an editorial extra!

TEN YEARS ON!

I have just taken a look at the early issues of Page 6 to see if we have any 'golden oldies' that might be worth reprinting and was interested to find an editorial published just over 10 years ago, in Issue 7. Here's how it went.

This is probably an opportune moment to restate the philosophy behind PAGE 6. Although the situation is changing slowly, you will not find much for the Atari in the national computer press. In America, where there are many more machines, there are two dedicated Atari magazines and a host of others that provide regular support. The amount of third party products and advertising revenue is enormous allowing such magazines to grow. In the U.K. the story is vastly different and it is unlikely that similar magazines will appear. PAGE 6 was created to fill a gap and allow Atari owners to share their discoveries with others as a sort of national 'user group'. All of the articles and programs come from YOU and without your dedication and support the magazine would fold. Contributions are mainly voluntary, i.e. you don't get paid, but I would hope that the satisfaction of seeing something you have written published in a magazine read by Atari enthusiasts all over the world will be reward enough. Many people seem to think that, because of the quality of the magazine, PAGE 6 is produced by a 'big' publisher. That is not so, all of the 'staff' are listed on page 3! We accept advertising for two reasons. Firstly it pays for the quality of the magazine (just) and secondly, in a country that does not have the same support for the Atari as for other machines, it allows you, the reader, to find products you might not otherwise know about and hopefully encourages those who want to produce software and expansions for the Atari to advertise at very reasonable rates.

That's it then. It is your magazine. When you write a program or discover a new aspect of your Atari, please send it in for others to share.

That was 10 years ago and, remarkably, very little has changed in that time. The only major difference is that the U.S. support has gone but, other than that, I could have written the same editorial today. Sure we all went through better times but we have come out, ten years later, at exactly the same point. Read that editorial again and particularly the line 'without your dedication and support the magazine would fold'.

One or two of you will have read the original editorial back in Issue 7 but most will not have been with us that long. Those of you who have been on the ride for only a couple of years should realise how important your continued support is.

Les Ellingham

P.S. Some things have changed. Issue 7 had advertisements for Super Breakout at £20, Zaxxon at £27.50, Centipede at £27.95 and Blue Max at £23.50. Check the recent Accessory Shop prices and you'll see how much you have benefited by our sticking with you!

Mailbag



Back Again!

I'd like to say "Thanks" to Les for stepping in to the breach at short notice last time around when the deadline beat me and I didn't get a chance to compile the letters column. It's now the beginning of December and I've got just enough time to get this issue's Mailbag together before Christmas - and luckily, I've just got over a bout of 'flu which laid me low for a week - so here goes ...

Allan J Palmer

THANKS

Dennis Hedges of Southampton asks that I pass on his thanks "...to M Tomlin for taking the trouble to reply to my letter and assistance on the 1050 disk drive problem in issue 73. I took a very careful look at the inside and found one of the plugs loose, pushed it home, and hey presto we were in business again. Here's a little tip that may be helpful to someone, if any of the circuits in the membrane of the keyboard are broken, they can be repaired by the glue used for repairing the heater elements in a car rear window demister - it's called "Electrcure" - it's not too dear but a steady hand is required."

8-BIT BBS?

Ray Thompson of Leeds asks " ... if there are any Atari 8-Bit Bulletin Board Services (BBS's) in the U.K. or even outside the U.K.? I am a user of various BBS's around the country but as yet I have never found any dedicated Atari 8-bit ones, or even a section in a BBS for Atari 8-bit; there is however a great deal of Atari ST support on the BBS scene."

❢ *Sad to say, Ray, I'm unaware of any Atari 8-bit BBS since the demise of the CITY BBS (formerly the ARK). I suspect that there isn't a large enough community to support a dedicated 8-bit BBS. Most BBS's carry lists of other BBS's, so if you haven't found one there, I suspect we're out of luck - unless of course one of our readers knows better? The growth of the InterNet and the World wide Web may overtake the use of Bulletin Boards - perhaps John S Davison's new Cyberspace series of articles will shed some light on a possible alternative ...*

USEFUL 800XL

Dave Deeming from Gillingham in Kent sent in a lengthy letter which I hope he'll forgive me for condensing. First he offers help for Eddie Jones' problem in making a back-up copy of AtariWriter Plus (by the time this sees print, I should have got Dave and Eddie in contact with each other). Dave continues by praising AtariWriter Plus "...every Atari Classic owner who prints documents by the score and/or is a prolific letter-writer should not be without it! I've owned my Atari 800XL (upgraded some time ago with a 256K Rambo XL board) for about 9 or 10 years and it has been worth more than its weight in gold - I don't know what I'd have done without it!"

Dave explains that a couple of years ago he was made compulsorily redundant after more than 30 years employment with a large multi-national company - he lost thousands of pounds' worth of pension rights, etc. through his former employer's actions. With another redundant colleague, Dave has attempted to take action against this redundancy, resulting in many Industrial Tribunal hearings, involving the production of hundreds of sheets of documentation to be used against the company. Additional Dave and his colleague had to take action against their own Union and a negligent solicitor - hundreds of more sheets of typing. To have undertaken all this documentation in handwritten form, keeping carbon or photo-copies wotild have been tedious to say the least, but Dave's Atari 800XL, AtariWriter Plus and Panasonic printer came to the rescue.

➾ *On a more enjoyable note, Dave also sings the praises of another Atari Classic program - the Atari Planetarium.* "I've owned this for a number of years but when I got it I was flabbergasted by its power and accuracy. It will give you a picture of the sky (day or night - on screen or printer) for any minute of any day wherever you stand on Earth (except for the Polar regions) and during periods extending from 9999 B.C, to 9999 A.D. Additionally, it will tell you within very precise tolerance values the angular bearings of hundreds of stars and galaxies, in addition to those of the Sun, Moon and planets - this program will sharpen up your interest in our wonderful universe." *Dave notes how the power of the Atari Planetarium was able to pinpoint for him a childhood memory of watching a solar eclipse in Edinburgh - the program brought back a 9 year old Dave's view of the sky at 12:10 pm on 1st September 1951!*

❢ *Thanks for the letter Dave and your endorsement of a couple of fine Atari Classic programs. I must add my support to Dave's views of the Atari Planetarium - it's a great piece of work for the 8-bit and certainly proved useful in helping my young daughters understand something about the stars and constellations.*

TAPE TO DISK TRANSFER

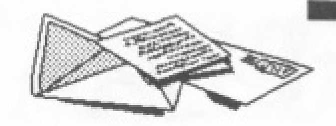
Reginald Hatch of Datchet in Berkshire offers some help to Bryan Zillwood to transfer programs from tape to disk. Reginald suggests that the program Football Manager can be transferred using a program "...published a long time ago ..." *(and in a galaxy far away ... whoops, the Mailbag Editor's been watching Star Wars again!)* "in a magazine published by 'The U.K. Atari Computer Owners' Club'. In issue 5 of their magazine, there appeared a program written by Ron Levy called De-Tokeniser which allows you to list protected Atari BASIC programs."

❢ *Thanks for the help, Reginald - I'll pass your photocopy of De-Tokeniser back to Les so that he can dig Bryan's address out of the files and send it on to him.*

HARDWARE HACKERS WANTED

Karl Smith of 80 Blythe Street, Wombwell, South Yorkshire S73 8JF is "...looking for someone who would be willing to write some programs to run some hardware expansions for me as I haven't got the time to write them myself. The expansions are:

- 2nd PIA chip giving 2x 8-bit bi-directional ports with 2 handshake lines, port 1 could be used for external control (e.g. a speech synthesiser as described in the old Atari User), port 2 could



be used for a printer port or 8-bit control for memory upgrade instead of $D301, which allows more expansion without having to remove BASIC

- VIA chip, provides all of the capability of the 6520 in addition of a pair of powerful interval timers, a serial-to-parallel/parallel-to-serial shift register and input data latching on peripheral ports
- ACIA chip, can be used to communicate with other Ataris direct or with a modem without the need of a 850
- and more to come when I get around to it!"

Good luck, Karl. I must admit some of that technical jargon went a bit over my old head, but I hope there's someone out there who understands it and is willing to assist.

PRINTER HELP

From Balzan in Malta, Joseph Friggieret would like help using his HP Deskjet 500C printer with his 130XE and XF551. "The printer works with programs like Mini Office II, The Home Accountant and the Swift Spreadsheet, however I would like to use the printer with a program called "GENERAL LEDGER" on Page 6 library Disk DS#2. The program is written using codes for the Gemini 10X printer. I would like to know how you can modify the codes in the program listing so that my HP500C can be able to print out the reports from General Ledger."

My initial thought is that as the printer works with some programs, it's probably Epson compatible? (Pause as this suggestion is shot down in flames by more knowledgeable people). Can someone supply a conversion list between Gemini 10X codes and those for an Epson (or a HP500)?

THOSE LISTINGS!

D Saunders of Devizes in Wiltshire is having problems with John Foskett's Lottery program in issue 73, in particular Mr. saunders has been unable to decipher the content of line 570. Just what are those inverse characters? Well, Mr. Saunders I hope that the revised format for the listings that debuted in issue 74 has made it easier to decipher and enter those special characters. In the meantime, for those of you who've had problems with that line in the Lottery program, here's my attempt at deciphering the troublesome string:

```
DLI$="H+)+[,]<E>M<M>+ESC,
TAB+[B]+)++<+<M>[V]+P ++)
+ESC,[-]<M>[W]+P++)+[N]<M>
[X]+P++)+<N><M>[V]+P+h@"
```

where ++ is inverse character, [] is control+character, <> is inverse control+character
I hope that helps!

ANOTHER LISTING DILEMMA

While we're on the subject of difficulties with the type-in listings, Mr H S Wood of Bradford, West Yorkshire reports that he "...had the greatest difficulty with the DATA lines (120 to 160) of the CES program and although in the end I managed to get the correct TYPO III codes for lines 130 to 160, I have been unable to get it for line 120. Nevertheless, the program works and is quite impressive."

Hmmm? does this mean that the listing format is still not 100% perfect? [A challenge, eh! I typed in this rogue line and managed to get the correct Typo code straight away. Alright it took me three goes and I admit that it wasn't ever so easy. One problem is losing track of the number of times the CTRL-comma followed by Inverse CTRL-B is repeated. It is easier to count them in the listing (there are 23) and then count them on screen. But I bet the one that has really foxed Mr Wood (it got me first time too) is the ESC, DELETE LINE. You just press the Escape key then the delete/back space key but with the shift key held down. This key has three functions. On its own it back the cursor one space; with the CTRL key it deletes and character and with the Shift key it deletes a line. You know that you have to try it Mr Wood just to see if it can be done and to prove that there is nothing wrong with the new format! Now we had better get back to the rest of the letter. Ed.]

"The most confusing part of the typing is that one needs constant concentration to remember whether one has lower case and/or inverse characters and in the middle of a line this can cause an ERROR which then has to be cleared. After many rude words, I decided to write a BASIC program to show the Status of the Caps and Inverse keys. the program displays a 'N' for normal and an inverted asterisk for lower case and inverse. The two characters are one above the other in the left margin. I have put them on the second and third lines so that TYPO III can use line one without overwriting them. The character in the margin does not interfere with the line being typed even if the character is on the same line. The program bypasses itself if the left margin is set to zero for long

continued overleaf



```
29000 REM*************************
29005 REM*   MARGINPRINTTO      *
29010 REM*   SHOW STATUSOF      *
29015 REM* CAPS AND CASE KEYS *
29020 REM*************************
29025 REM*          by          *
29030 REM*       H.S.WOOD       *
29035 REM*     November1995     *
29040 REM*************************
29045 RESTORE29135
29050 FLAG=0:A=PEEK(89)-1
29055 B=A:I=A*256:C=I
29060 IFA<>155THENFLAG=1
29065 READA
29070 IFA=999THEN29090
29075 POKEI,A
29080 I=I+1
29085 GOTO29065
29090 IFFLAG=0THEN29130
29095 RESTORE29165
29100 I=C
29105 READA
29110 IFA=999THEN29130
29115 I=I+A
29120 POKEI,B
29125 GOTO29100
29130 G=SR(C):RESTORE0:END
29135 DATA104,173,48,2,141,49,155,
173,49,2,141,50,155,24,173,49,155,105
29140  DATA16,141,49,155,173,50,155,
141,93,155,141,79,155,105,0,141,50,155
29145 DATA169,57,141,0,2,169,155,141,
1,2,169,130,141,48,156,169,192,141
29150 DATA14,212,96,72,165,82,201,2,
176,2,104,64,173,190,2,8,169,138
29155 DATA40,240,2,169,46,141,104,
156, 173,182,2,8,169,46,40,240,2,169
29160 DATA138,141,144,156,144,
224,176,222,999,999,999
29165 DATA6,12,16,21,24,27,30,35,42,
999,999,999
```



lines (and of course it does not display). The routine is one page below the screen memory and adjusts itself for BASIC or Turbo BASIC.
The entry was much easier with this program, but I still cannot get the correct TYPO III code for line 120 of CES!

Thank you Mr. Wood, your utility is printed alongside and perhaps it may help resolve any remaining problems with the listings.

ATARI FUTURE?

Following our Esteemed Editor's comments on the unlikelihood of Atari surviving to 2020, Graeme Fenwick of Dundee dropped us these lines:

"I read on the news page of TeleText's Digitiser magazine (p. 471 Channel 4, Nov 20 1995)that there are rumours that Atari are "about to slice their hardware arm off." It then goes on to say that they've binned the Jaguar 2 development team and are swiftly winding up all Jaguar activity for a future "as a PC games developer." Although it was penned in TeleText's own "inimitable" style, it obviously wasn't a joke article. It looks like Atari really have chucked in their last aspirations of being a major player.
And yet, the thing is, don't they deserve it? How many machines have failed to take off because Atari didn't give them the support they deserved? Everything from the pathetic launch of the XE Games System onwards has been a disaster (although the rot had arguably set in even before that). The failure of the Jaguar (which wasn't surprising since the moment Atari postponed the launch because stocks were low - typical!) is just the final nail in the coffin. I could go on, but the XE Games system, Lynx, Falcon and Jaguar speak for themselves. What happened to all those promises the Tramiels made? Then again, what happened to the Tramiels? Still, they outlived Commodore which must be an achievement - just not a very big one. Oh, and they've got a nice logo.
On the up side, all these thoughts about Atari may have rekindled my interest in my 130XE. Who knows? - I might end up writing some half decent programs for it!"

If you do write some programs for your Atari Classic, Graeme - don't forget to let Les see them! Thanks for your thoughts on Atari Corp's future (or lack of it...). Interestingly, the same day that your letter arrived at the palatial penthouse headquarters in Stafford of Page 6 Publishing (the what! ... we open the letters in the garage! Ed.), Les also received that week's issue of the computer trade newspaper 'CTW' which carried a full page article/interview with Bob Gleadow, Atari's European boss. We haven't got space to reprint the whole article, but Les highlighted a few paragraphs that you might find interesting ...

'He [Bob Gleadow] speaks to CTW not long after The Sunday Times ran a piece predicting that Atari would soon dip out of the hardware market completely and concentrate on software.'
'The European operation has already been hacked back to cope with the pervading austere environment. Atari UK now has only 15 employees (compared to over 300 five years ago) and there is only one other European office, in Holland, concerned mainly with logistics.'
'Globally the firm turns over less than an average size games publisher. In the third quarter to September 30th it lost US$13.4 million on US$4.1 million sales. In the nine months of this year it has now lost US$23.8 million on sales of just US$12 million.'

The article also reports on the newly set-up Atari Interactive's plan to publish its first PC CD-ROM game, Tempest 2000, in January 1996; and that Atari is hoping that a reduction in chip costs in 1996 will provide some small scale opportunity - perhaps a Jaguar bundle for under £100. But the competition is of course Sega and Nintendo with its Ultra 64... It is noted that the Jaguar recently went on trial at 50 top Dixons stores and although no formal announcement has been made, it is understood that the format is being phased out of the chain.

I must quote the article's concluding paragraph summarising Gleadow's hopes:
'All of which should guarantee, if nothing else, more of what is already Atari's acknowledged speciality - good copy.'



DEDICATION

Finally, I feel it's appropriate that I add a dedication to this column. You may have read elsewhere via Derek Fern's catalogue mailing or in the TWAUG Newsletter of the untimely death of Dave Ewans, one of the organisers of TWAUG. Unfortunately, New Atari User's recent schedule prevented us from referring to this earlier. I never actually met Dave, but over the last three years or so during which he helped get the TWAUG Newsletter up and running, we talked either by post or by 'phone on several occasions. On each occasion, I came away refreshed and enthused - impressed by Dave's cheerful attitude and friendliness. He struck me as someone who was always willing to help others in our shared interest of the Atari Classic without wanting anything out of it for himself. I'm sorry that I never made it to one of the AMS shows and got the opportunity to meet Dave in the flesh. I hope Dave's approach has rubbed off on other people and that his influence will help prolong the support of the Atari Classic. My sympathy goes out to Dave's family.

So I dedicate Mailbag for the foreseeable future to the memory of Dave Ewans - one of the good guys!

WRITE TO US!

Air your views on all things Atari or help your fellow users with their queries - even ask for help yourself if you want. It's all interesting, if only you write it down. Here's the address:

MAILBAG
NEW ATARI USER
P.O. BOX 54, STAFFORD
ST16 1TB



HARDWARE

DON'T DUMP YOUR DRIVE!

John Foskett has a few ideas of what to do when your drive goes wrong

Whilst programming one evening in April 1992, saving my work to disk at regular intervals of about 15 minutes or so as one should, I discovered to my horror that on one occasion error 144 resulted. I attempted to save the latest version of my work several times all of which resulted in error 144. I inserted another of my work disks into the drive and again attempted the save. Again the same error resulted - error 144. I inserted yet another of my work disks and again attempted the save only to be greeted yet again with error 144. Having realised that saving the program had for some reason become impossible, I wrote down on paper all the changes that I had done to the program in memory since my last successful save and then switched my equipment off so that I could investigate the problem further.

Since all disks failed at the same time, and it is unlikely that all the individual disks would have faults such as bad sectors the problem must be something to do with my 1050 disk drive itself.

THE DRIVE

My first task was to remove the cover which is achieved by inverting the drive and removing the six screws securing it. The cover is then removed by turning the drive back the right way up and carefully lifting the cover from the back, pulling it forward, lifting it clear of the drive.

Once opened, the first step is to inspect the tiny pressure pad which is positioned above the read/write head upon a pivoted, spring loaded arm. This tiny pad is the usual reason why a disk drive fails to read from or to write to a disk.

With a disk inserted in the drive and the drive closed, it can be seen that the pressure pad makes contact with the actual disk itself. There must be a small gap between the surface of the disk and the tiny cup that supports the pressure pad. This is to ensure that only the pressure pad touches the disk and not the cup itself, the gap should be about 1mm.

MY PROBLEM

Upon inspection, I could see that virtually no gap at all existed between the pressure pad cup and the surface of the floppy disk. This is therefore the most likely cause of my problems but even if it is not, it must still be corrected. I could also see that this could be the cause of another annoying problem that has begun to plague me, that of a horrible squeal which is generated as the disk rotates, obviously generated by the cup actually touching the disk.

Over a period of time, the pressure pad gets compacted and one method of reviving it, is to unfold a paper clip and very carefully roughen up the surface of the pad with it. This process however, proved to be a failure in my case, since the pressure pad had literally worn itself away. The only remedy was replacement, but with what and how?

USE A CASSETTE!

After an hour or more in very deep thought, it occurred to me that perhaps another item that uses a pressure pad could be put to a good (or better) use. I realised that every cassette uses a pressure pad and that I have many old C15 computer tapes that I haven't used since becoming a disk user several years ago. Here then, was the answer to my problem, make a new pressure pad.

FINDING THE RIGHT BIT

The first step is to remove the spring loaded arm that supports the pressure pad. This is achieved by very carefully pushing out the small spindle that the arm pivots on taking extreme care not to touch the read/write head immediately below it. The spindle can be easily removed by using a pointed tool (a 2" panel pin can be used). The spindle is best pushed out from the main drive motor side of the disk drive and finally withdrawn from over the stepper motor using a pair of long nosed pliers. Great care must be taken to prevent the tiny spring from flying out of the drive under its own tension whilst withdrawing the spindle. This could be done by using a short length of cotton tied to the spring before the spindle is withdrawn.

With the pressure pad arm removed, it merely remains to remove the tiny pressure pad support cup from the arm itself. This can be seen to be a small separate component carrying the actual pressure pad. Removal of the pressure pad cup is achieved by gently squeezing together the sides of what looks like a large screwdriver slot and allowing the cup to fall free.

Once the tiny pressure pad cup has been removed from the arm, the pressure pad itself (or what remains of it) can easily be seen. Another attempt to revive the pressure pad using a pointed tool should be tried before replacement is finally considered.

If you do need to replace the pad it is important that all traces of the old pressure pad and its adhesive are removed prior to replacement.

MAKING THE NEW PRESSURE PAD

The next step is to obtain an old cassette (or buy a new one, the price must be worth it). The cassette must then be carefully opened and its tiny pressure pad removed. This is normally a pressure pad secured to a small thin phosphor bronze spring strip.

The next procedure is to separate the pressure pad from its spring clip which can be achieved using a sharp knife or a scalpel blade. The actual method of removal will, of course depend upon the design and make of the cassette (I used a Boots C15 cassette). Once the pressure pad has been removed, the rest of the cassette can be discarded. The pressure pad, once separated from its spring clip, can be seen to be about 6mm long, about 4mm wide and about 2mm thick.

Again using a sharp knife or a scalpel blade, the next step is to cut the pressure pad into a square of about 4mm, the odd piece remaining can then be discarded. Although this should be reasonably accurate, it can easily be judged by eye. The four corners of the square are next removed, again by eye to form an octagonal shape which is near enough circular to fit into the pressure pad cup. If necessary the "new pressure pad" can be further shaped but it must be slightly larger than the internal dimension of the cup to allow for a secure fixing.

The next step is to cut a piece of double sided, self-adhesive tape about the size of a postage stamp (Double sided tape is available from any stationery supplier. Any make will do, I used Scotch). The protective backing is first removed from one side and the pressure pad firmly placed into the centre. It is important that the side of the pressure pad that was originally in contact with the tape within the cassette should eventually make contact with the disk. The double sided tape is then trimmed around the pressure pad to create a circular pressure pad with a self-adhesive backing.

Ensuring that the cup is free from any remnants of the original pressure pad, remove the protective backing from the new pressure pad and firmly press it into the cup. The surface of the new pressure pad should be about 1mm above the level of the top of the cup.

It now only remains to re-assemble the components back into the drive. It is a simple matter to re-insert the cup complete with its new pressure pad back into the arm. But it is far from easy to re-assemble the arm, spindle and the spring. However, with care and patience this can be successfully achieved.

For this reason, it is a good idea to sketch on paper before removal, the exact position and orientation of the spring, noting the amount by which it unwinds upon removal, which is normally half a turn. There are three positions in the lower moulding for the spring which provides three different settings for the pressure of the pressure pad, this should also be noted.

IT WORKS !

Having completed the replacement of the pressure pad inside my disk drive, the next step was, of course, to test it. Before replacing the top lid, I re-connected the drive and switched on, booted the computer using DOS2.5 and attempted to format a few blank disks, all of which formatted perfectly, without error. By inspection, I could see the pressure pad as it rode over the surface of the rotating disk looking much healthier than before.

Since replacing the pressure pad the disk drive has been well used and has not failed in any way. I have removed the cover once again on occasion and I can see that the new pressure pad is still looking very healthy and working well.

MY WORK DISKS

Listing the directories of my work disks which I originally attempted to save my program to proved to be impossible, but I could however list the directories of other disks. I wondered if they had become corrupted in some way when attempting the failed saves and whether I could repair them or not. By using a disk sector editor, I found that they had been corrupted well beyond repair and that I really had no choice but to reformat them and to start again.

Fortunately, and by sheer coincidence, I had previously saved a copy of my program to another disk for temporary storage and there was nothing else of importance on the disks and so a reformat was not too unbearable.

TAKE A TIP!

Always use at least two work disks and swap them at regular intervals. We are all guilty from time to time of not taking this simple precaution because it can seem like an awful chore when we get engrossed in our work, but it could end up being your lifeline if things do go wrong.

If errors do occur whilst saving your work, then never risk corrupting other work disks by trying to save to them. If further attempts are to be made, then use a blank formatted disk instead or a disk of lesser importance. For this purpose, it is a good idea to always keep at least two blank formatted disks available. •



THE XIO FILES

Some little used programming commands investigated by Paul Hollins

When you first bought your Atari, like me, you were probably disappointed by the manual - or apparent lack of one! Who wasn't? I'd never used a computer before and with Atari neglecting vital pieces of information, it wasn't easy making those tentative first steps into programming. However, it did give me that little push that I needed to explore things on my own, without knowing what was going to happen. I think, therefore, it made it a lot more fun to learn this way than it would have otherwise been.

Recently when I was tinkering away at my keyboard, I thought, for some strange reason, about the elusive XIO command and what it was for - don't ask me why! I remembered that back in the days of the 'Atari Helpline' I had called them up to ask about it, as a fellow 8-bitter had told me what it was capable of. They said, "Oh yes, the XIO command. Well, err it's where you can, err, do things from BASIC. Err, that's it really!" Great, thanks for the help Atari! So, I set out trying to find out as much about it as I could on my own. I found a couple of fleeting references to it, but nothing spectacular. One article I remember reading called it "The Most Undocumented Command" and they weren't far wrong! My article has drawn inspiration (and in parts, information) from Ron Levy who, in my opinion, wrote the best description of using XIO's many moons ago in the now defunct MONITOR magazine!

WHAT IS XIO?

BASIC has a number of commands for controlling data input and output, such as OPEN, PRINT, GET, PUT, etc. but obviously trying to squeeze everything that's needed in a BASIC language onto an 8K ROM, just didn't work. Atari ran out of space and consequently didn't have enough room to fit in all that they would have liked. Therefore, they created the XIO command as a means of being able to access the functions they didn't have room to name properly.

USING XIO

To use an XIO you have to adhere to the following rules, which are:

XIO, COMMAND No, #CHANNEL No, VALUE 1, VALUE 2, FILENAME$

The values associated with your XIO command will vary depending upon which function you would like to perform. Here's a brief explanation of what does what, when you issue an XIO command.

COMMAND No: The number you use here represents which command is going to be performed.

#CHANNEL No: Use this in the same way as you would in a normal OPEN command (i.e. #1, #2, #3, etc.).

VALUE 1/VALUE 2: These two integers (range 0 to 65535) are not actually used in many of the commands but a few XIO calls use them to pass parameters onto the operating system.

FILENAME$: Use this as a text area to pass text data such as a filename or that contained in a BASIC string.

WHAT CAN XIO DO?

The number of commands available is in fact down to you. The operating system of your computer was designed to allow for expansion and if you know how to program in machine code you can actually add more commands to the XIO table and those commands will be accessible from BASIC. But if you can't be bothered with all that and want to know what's available 'off the shelf' take a look at Fig One. As you can see, a lot of the commands are just duplicates of those already

```
RI 0 REM [Q][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][E]
YD 1 REM |       PROGRAM 1       |
LW 2 REM [A][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][D]
WL 3 REM |A Demonstration of using|
HK 4 REM |     XIO 18 (FILL)     |
LZ 5 REM |   Written by Ron Levy  |
MA 6 REM [A][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][D]
NP 7 REM |This program originally|
RM 8 REM |appeared in MONITOR 16 |
RQ 9 REM [Z][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][C]
PP 10 GRAPHICS 8
YU 20 COLOR 1
RN 30 REM ** DRAW RIGHT EDGE **
GP 40 PLOT 300,20
IF 50 DRAWTO 300,100
VA 60 REM ** DEFINE LEFT EDGE **
GY 70 PLOT 30,20
UP 80 POSITION 100,100
XS 90 REM ** GIVE FILL COLOUR **
LA 100 POKE 765,1
KK 110 REM ** CALL THE FILL **
PM 120 XIO 18,#1,0,0,"S:"
```

Underline = INVERSE CHARACTERS · [ ] = CONTROL + CHARACTER · < > = INVERSE CONTROL + CHARACTER

continued ☛

available from BASIC, but there are also several 'new' commands which aren't readily available. Let's take a look now at each one in more detail.

DISK FILES

XIO 3 - OPEN A FILE OR DEVICE

The XIO version of BASIC's OPEN command is almost identical and, in practice, all you are doing is replacing the command OPEN with XIO 3 to get the same result. So, next time you need to OPEN a device, you have a choice of two ways of doing it. The format of using this XIO is:

XIO 3,#1,8,0,"D:filename.ext"

As with the OPEN command, the 8 in VALUE 1 signifies 'open the file for output'.

XIO 9 - PUT RECORD OR 'PRINT'

To send a string of text to a file (which must have already been OPENed) use the following format:

XIO 9,#1,8,0,"HERE'S A LINE"

Note that you must place an 8 in VALUE 1 of the command, to signify an output. By the way, instead of using a literal string (in quotes), you can also print the contents of a variable to the file, for example:

XIO 9,#1,8,0,STRING$

XIO 12 - CLOSE FILE

Any CLOSE command you normally issue from within a program or in immediate mode (i.e. directly onto the screen without a line number) can be substituted with:

XIO 12,#1,0,0,"D:filename.ext"

This has exactly the same effect as BASIC's CLOSE statement.

READING A FILE

You can use an XIO command to read a file, and although this has no advantage over using GET from BASIC it does give you a better picture of what XIO is actually capable of. To use this feature, firstly you need to open the file to read. Instead of using BASIC's OPEN command use an XIO 3, but this time in VALUE 1 you should use a 4 to signify an input. For example:

XIO 3,#1,4,0,"D:filename.ext"

XIO 5 - GET RECORD OR 'INPUT'

To use an XIO 5 command in your program, you have to format it in the following manner:

XIO 5,#1,4,0,STRING$

You must store the read from the file in a string. Of course this means you should DIM the string that you are going to use before you attempt to read the file otherwise you'll run into all sorts of problems. Also never try to read a record that is longer than the DIMmed length of your receiving string. Because if you do you may find that it corrupts other strings or even parts of your program, forcing BASIC to 'lock-up'! And don't forget to close the file, after you've finished reading from it, by using an XIO 12 command.

MANIPULATING DISKS (A REPLACEMENT FOR DOS)

Okay, so we've taken a look at the XIO's that resemble BASIC commands, Now let's cast our eye over some others which aren't similar to any that are available from BASIC.

XIO 32 - RENAME FILE

By issuing an XIO 32, you can change the name of a file just as you would by using DOS. To use simply type:

XIO 32,#1,0,0,"D:oldname,newname"

And the result would be that file called 'oldname' would be renamed as 'newname'. All that without a DOS call in sight!

XIO 35 - LOCK FILE

This command takes care of the files on your disk, by allowing you to lock them all, or just one specific program or file. To lock just the one file type:

XIO 35,#1,0,0,"D:filename.ext"

And to lock all the files, you should type this instead:

XIO 35,#1,0,0,"D:*.*"

XIO 36 - UNLOCK FILE

If you need to unlock a file or files for any reason, it's just as simple as locking them. For example to unlock just one file type:

XIO 36,#1,0,0,"D:filename.ext"

And to unlock them all, type:

XIO 36,#1,0,0,"D:*.*"

XIO 254 - FORMAT DISK

This can be a real life saver, especially if you don't have a RAMDISK (or MEM.SAV) and you find that you have run out of disk space and need to format a new one so that you can save the program that you are writing. However if you do use this command, BE CAREFUL - because once you've issued it and pressed [RETURN] there's no turning back, everything on the disk will be erased as there are no 'Are You Sure?' prompts.

If you use DOS 2.5 you can in fact format your disk in either single or enhanced density. Firstly to format in single density use XIO 253 instead of XIO 254, for example:

XIO 253,#1,0,0,"D:"

But if you want to get as much disk space as possible you can format in enhanced density (on a 1050 or XF551) by typing:

XIO 254,#1,0,0,"D:"

Once you've done that, you can also write a DOS.SYS file to the disk by just typing SAVE "D:DOS.SYS". There will, however, be no DUP.SYS file - you'll still have to use DOS option H to do this. Incidentally, if you are using an 810 you can issue either of the above commands, XIO 253 or XIO 254, to format your disk, but you'll only be able to get single density, I'm afraid.

A WARNING

All of the last five XIO commands that we've looked at must each be given an UNUSED channel. We have been using #1, but if #1 is already in use in your program then use a different one for any XIO commands. Whatever you do make sure that they don't clash or you'll get some strange error numbers.

USING XIO IN GRAPHICS

XIO can also be used in one graphics application, that of filling shapes. The command is:

XIO 18 - FILL

An example of the format to use is:

XIO 18,#1,0,0,"S:"

The fill function is used to fill in shapes which have been drawn on a graphics screen using the PLOT and DRAWTO commands. It is, however, very limited in the way that it operates, in fact it is probably quite a big disappointment to most people when they learn how to use it for the first time!

Type in and run Program One. Notice that it

CRASH!

I was trying to think of something to fill up this space and thought I would print a routine that I have often used to read a joystick without lots of IF ... THEN statements but it sort of developed into a mini game. There's no room now to explain how it works but you can use lines 100 to 120 in your own programs to move something about with the joystick.

If you want to play the game, you just need to crash into the blocks to score points. If you go too long without hitting a block the game ends.

Les Ellingham

```
UU 10 GRAPHICS 0:POKE 752,1:POKE 710,0
BQ 100 STICK=STICK(0):X1=X:Y1=Y
NL 110 X=X+(STICK=6)+(STICK=7)+(STICK=5)-
   (STICK=10)-(STICK=11)-(STICK=9)
GK 120 Y=Y+(STICK=9)+(STICK=13)+(STICK=5)
   -(STICK=10)-(STICK=14)-(STICK=6)
LE 150 POSITION INT(RND(0)*39),23:? "_":B
   RICKS=BRICKS+1:IF BRICKS=40 THEN 250
RE 190 LOCATE X,Y,C:IF C=160 THEN POKE 71
   0,14:WHOA=1^1:POKE 710,0:SCORE=SCORE+1
   :BRICKS=0
BZ 200 POSITION X1,Y1:? " ":POSITION X,Y:
   ? "X"
LJ 210 GOTO 100
IC 250 ? "GAME OVER - YOUR SCORE ";SCORE
```

draws a line on the right hand side of the screen, and then proceeds to fill it.

The process the computer follows when executing a fill is very simple indeed. It goes as follows:

1. Draw an imaginary line between the pixel last referenced to in a PLOT or DRAWTO, and the pixel referred to in the POSITION command.
2. Go to the beginning of this line, and for each pixel along the imaginary line, draw a horizontal line out to the right, until it meets another lit (non-zero) pixel. If it does not meet another lit pixel, it will 'wrap around' until it meets itself!

Following this logic, it should be easy to see that in order to draw a square, or filled-in box, you need only draw the right-hand edge, then give the top left and bottom left corner's coordinates in the PLOT and POSITION commands, and the fill will then take care of the rest. Try experimenting with different shapes and you'll soon begin to see how limited, in practice, Atari's fill really is!

I hope that this introduction to a little used command will inspire you to expand your programs a little. At the very least you will be able to include some of the basic DOS disk commands in your programs but, maybe, you will be able to work out some more complex and exciting routines. If you do be sure to let us know. ●

A SUMMARY OF XIO COMMANDS

COMMAND	OPERATION	EXAMPLE
3	Open a file	Same as BASIC's OPEN
5	Get record	Same as BASIC's INPUT
7	Get characters	Same as BASIC's GET
9	Put record	Same as BASIC's PRINT
11	Put characters	Same as BASIC's PUT
12	Close a file	Same as BASIC's CLOSE
13	Status request	Same as BASIC's STATUS
17	Draw a line	Same as BASIC's DRAWTO
18	Fill an area	XIO 18,#1,0,0,"S:"
32	Rename a file	XIO 32,#1,0,0, "D:oldname,newname"
33	Delete a file	XIO 33,#1,0,0, "D:filename.ext"
35	Lock a file	XIO 35,#1,0,0, "D:filename.ext"
36	Unlock a file	XIO 36,#1,0,0, "D:filename.ext"
37	Point	Same as BASIC's POINT
38	Note	Same as BASIC's NOTE
253	Format Single	XIO 253,#1,0,0,"D:"
254	Format enhanced	XIO 254,#1,0,0,"D:"

Hardware

UTILITY

RAM BANK TESTER

The easiest way to access the extra RAM of the 130XE or an expanded XL is to set up a table of values which cause the correct bank to be selected. Banks are selected by using PORTB (54017)- there's been plenty of discussion of this in recent NAU's so I'll skip it here. Suffice to say that if you Poke the correct number in here a bank is selected.

It's perfectly possible to bank switch in Turbo BASIC (or even ATARI BASIC and compiled Turbo BASIC), as presented here, but if you wish to access the banks in BASIC then your program must not grow into the bank switch area. This is located between 16384 and 32767 and thus limits program size to very small (use DPEEK(14) to give you an idea of where your program ends). If your main program is in BASIC, however, and you are using a machine code routine to access the banks you can use the whole main bank for your program. This is then switched out by the machine code routine, and as BASIC has been suspended while your machine code runs you may then access any of the other banks. Just remember to switch back to the main bank before exiting your machine code routine, then BASIC carries on totally unaware that any bank switching has been done!!

The program works by attempting to store a value in the same place within each bank (CBYTE). It then runs through each bank again looking for this number. If it is found then it is reset to 0 and the number of banks increased by 1. RESET is the initial value of PORTB and selects the main bank. This is saved in PTABLE as the second value, the first being the number of banks detected. All other bank select values are then placed after RESET, giving a list starting with the main bank and ending with the last bank select value. MASK is used to de-select the Self-test code and keep the current BASIC ON/OFF status selected (so that the routine works properly when compiled). You may be wondering why CHECK goes up to 31, this is to check for 256K expansions as I have a YORKY myself although the program should work equally well on a 130XE - though only giving 4 extra banks as opposed to my 12!!

The first loop sets up, the second checks and creates the table. PORTB is then reset to return the main bank. It is suggested that re-setting PORTB is the first thing a bank switching program does.

***by* Andy Guillaume**

SEEING IT WORK

The demo program should be run after running the main program as the bank switch

```
TO 1 REM ###########################
FL 2 REM #      RAM TEST DEMO      #
XG 3 REM #      (TURBO BASIC)      #
OO 4 REM #   by Andy Guillaume     #
KA 5 REM # ----------------------- #
LQ 6 REM # NEW ATARI USER - JAN 96 #
TU 7 REM ###########################
NN 8 REM
VD 10 REM  Setup Variables
VA 20 PORTB=54017:PTABLE=1536:MEM=16384
PZ 30 RESET=PEEK(PTABLE+%1):NUMBANKS=PEEK
   (PTABLE)
EB 40 POKE PORTB,RESET
EU 50 REM  Setup Screens
MG 60 GRAPHICS %0:SCN=DPEEK(88):POKE 709,
   4
GL 70 FOR N=%0 TO 4
RE 80 REM  Draw screen
BH 90 FOR X=%0 TO 39:POSITION X,%0:? N:NE
   XT X
MQ 100 FOR Y=%1 TO 23:MOVE SCN,SCN+(Y*40)
   ,40:NEXT Y
ZG 110 REM  Select Bank
NR 120 BANK=PEEK(PTABLE+%1+N)
FH 130 POKE PORTB,BANK
PB 140 REM  MOVE screen to MEM
CM 150 MOVE SCN,MEM,960
IB 160 NEXT N
DT 170 POKE PORTB,RESET
ET 180 REM  Flip screens
OP 190 GRAPHICS %0:DL=DPEEK(560)
QG 200 REM  Set DL to point to MEM
WU 210 DPOKE DL+4,MEM
QQ 220 FOR N=%0 TO 4
ZL 230 REM  Select Bank
NW 240 BANK=PEEK(PTABLE+%1+N)
FM 250 POKE PORTB,BANK
XC 260 GET A
IE 270 NEXT N
ND 280 GOTO 220
```

```
TO 1 REM ###########################
WL 2 REM #         RAM TEST        #
XG 3 REM #      (TURBO BASIC)      #
OO 4 REM #   by Andy Guillaume     #
KA 5 REM # ----------------------- #
LQ 6 REM # NEW ATARI USER - JAN 96 #
TU 7 REM ###########################
NN 8 REM
GN 10 REM  SETUP VARIABLES
TT 20 PORTB=54017:CBYTE=20480:PTABLE=1536
YX 30 REM  SETUP SCREEN
CN 40 GRAPHICS %0:SETCOLOR %2,%0,%0:SETCO
   LOR %1,%0,10:POKE 752,%1
PU 50 POSITION %0,20:? "000K Bytes RAM BA
   NKS FREE (00 BANKS)"
OK 60 REM  GET RESET VALUE
XX 70 RESET=PEEK(PORTB):MASK=RESET&131
WM 80 REM  SETUP BANKS FOR TEST
YA 90 FOR CHECK=%0 TO 31:BANK=(CHECK*4)!M
   ASK:POKE PORTB,BANK:POKE CBYTE,42:NEXT
    CHECK
IH 100 REM  RESET PORTB
GM 110 POKE PORTB,RESET:POKE CBYTE,%0:NUM
   BANKS=%0
TM 120 REM  TEST BANKS
AX 130 FOR CHECK=%0 TO 31:BANK=(CHECK*4)!
   MASK:POKE PORTB,BANK
IR 140 IF PEEK(CBYTE)=42 THEN NUMBANKS=NU
   MBANKS+%1:POKE CBYTE,%0:POKE PTABLE+%1
   +NUMBANKS,BANK
IW 150 Z=LEN(STR$(NUMBANKS*16))
CB 160 POSITION %3-Z,20:? NUMBANKS*16
KC 170 NEXT CHECK
PT 180 Z=LEN(STR$(NUMBANKS))
KG 190 POSITION 29-Z,20:? NUMBANKS
II 200 REM  RESET PORTB
TM 210 POKE PORTB,RESET:POKE PTABLE,NUMBA
   NKS:POKE PTABLE+%1,RESET
```

Underline = INVERSE CHARACTERS · [ ] = CONTROL + CHARACTER · < > = INVERSE CONTROL + CHARACTER

table is required. The screens are first set up then MOVEd to each bank (the bank is switched and the memory moved to the same place each time). The DL is altered to look at the start of the bank switch area. The second loop then just selects each bank in turn at every key-press. As the DL has been set the screen automatically flips to show the data saved in each bank.

On a YORKY expanded XL the bank select values are set up in General Extended RAM mode meaning both ANTIC and CPU access the banks when required. This gives greater compatibility between the 130XE and expanded XL's so everybody should be able to use your programs. On a 130XE the program should work okay for CPU access as it stands. If ANTIC access does not work then try altering both of the testing loops to run from 31 to 0 STEP-1. This means that the ANTIC bit is tested before the CPU bit and should select ANTIC access. I might be wrong though, and this may not be necessary.

I was disappointed that the Video Blitz demo doesn't work with my YORKY as the ANTIC only extended RAM mode is not supported to make way for the extra bank select bits. However, Shiny Bubbles and everything else I've tried does work!!

My latest software release, CLIP-TRACKER XE, is an updated sample sequencer that uses bank switching to give 64K for samples on a 130XE. Up to 192K of banks are supported on expanded machines - as are Stereo upgrades if fitted.

●



PROGRAMMING

UNDERSTANDING ARRAYS

Ann O'Driscoll shows you how to use arrays for serious programs as well as for a slot machine game

Arrays are a very handy programming tool for manipulating large amounts of closely related information. This article takes a look at how they might be used in different types of programs. PROGRAM 1 demonstrates how a couple of one dimensional arrays could be used to store and process pupils' results in a test, while PROGRAM 2 sets up the basis of a stock control system using a two dimensional numeric array. There is also a simple slot machine type game which uses arrays to analyse numbers held in row and column positions on the screen.

SETTING UP SIMPLE ARRAYS

Before you use an array, you must reserve some space in the computer for it using the DIM (for dimension) statement. **LINE 40** of LISTING 1 sets up the two arrays for the "Marks" program. The test results will be held in the M array.

DIM M(10) creates a numeric array called "M" with room for 11 separate entries or numbers, held in M(0) to M(10). Our program will store the marks of 10 children in M(1) to M(10). We will ignore the 0 element of the array altogether, as it is more natural to count from 1 rather than 0. The children's names will be held in the N$ array - The last character in the array name must be a dollar sign for string (non-numeric) arrays.

DIM N$(50) sets up an array called N$ with space for 50 letters stored at N$(1) to N$(50). You will notice from this that there is no zero element in string arrays. Our program allows 5 letters per name and there are 10 pupils altogether, so N$ will accommodate them all. LINE 45 simply fills the string with spaces, to clear out any unwanted information.


```
TO 1 REM ##############################
RZ 2 REM # ARRAYS DEMO - PROGRAM 1 #
AQ 3 REM #            by             #
CX 4 REM #      Ann O'Driscoll       #
KA 5 REM # ------------------------ #
LQ 6 REM # NEW ATARI USER - JAN 96 #
TU 7 REM ##############################
NN 8 REM
BE 32 REM  1. DIMENSION THE TWO ARRAYS
ZD 40 DIM M(10),N$(50)
YH 45 N$(1)=" ":N$(50)=" ":N$(2)=N$
JU 59 REM  2. PUT DATA INTO THE ARRAYS
HU 60 FOR N=1 TO 10
FD 62 READ X
MN 65 M(N)=X:NEXT N
GZ 70 DIM A$(5):FOR N=1 TO 10
LB 72 READ A$
MX 80 N$(N*5-5+1,N*5)=A$:NEXT N
MZ 99 REM  3. ANALYSE THE INFORMATION
XM 100 GRAPHICS 0:? "TEST RESULTS":? "[R]
   [R][R][R][R][R][R][R][R][R][R]
   [R]"
SG 110 FOR N=1 TO 10
DM 120 ? N$(N*5-5+1,N*5),M(N)
XD 130 S1=S1+M(N)
DP 140 IF M(N)>=40 THEN S2=S2+1
IZ 150 IF M(N)>=55 THEN S3=S3+1
IB 160 NEXT N
EF 170 ? "[ESC,DOWN][ESC,TAB][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][R][R]"
PY 180 ? "[ESC,TAB]AVERAGE MARK:         "
   ;S1/10
GJ 190 ? "[ESC,TAB]NUMBER WHO PASSED:   "
   ;S2
WU 200 ? "[ESC,TAB]NUMBER WHO FAILED:   "
   ;10-S2
BW 210 ? "[ESC,TAB]NUMBER WITH HONOURS: "
   ;S3
WT 220 ? "[ESC,TAB][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [R]"
DO 230 POKE 752,1:POKE 764,255:? :? "
   [ESC,TAB]Press a Key"
DA 240 IF PEEK(764)=255 THEN 240
LW 300 GRAPHICS 0:? "[ESC,DOWN]CHILDREN W
   HO GOT 60 OR MORE":? "[R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R]"
SI 310 FOR N=1 TO 10
IL 320 IF M(N)>=60 THEN ? N$(N*5-5+1,N*5)
HX 330 IF M(N)>S4 THEN S4=M(N):X=N
HZ 340 NEXT N
ZZ 350 ? :? "THE BEST IN THE CLASS IS:":?
    N$(5*X-5+1,5*X);" WITH ";M(X);" MARKS
   "
JV 360 POKE 764,255:END
FY 580 DATA 64,48,18,56,71,29,35,86,52,60
MY 590 DATA ALICE,BRIAN,COLM,DAVID,EOIN,F
   IONA,GARY,HARRY,IRIS,JOE
```

Underline = INVERSE CHARACTERS · [ ] = CONTROL + CHARACTER · < > = INVERSE CONTROL + CHARACTER

PUTTING DATA IN ARRAYS

Our next job is to assign values to the array elements. **LINES 60 to 65** of PROGRAM 1 use a FOR ... NEXT loop to read the marks, held as DATA in LINE 580, into the numeric array elements 1 to 10. The routine at **LINES 70 to 80** is used to fill the string array. An array called A$ is set up to temporarily hold each name, held as DATA in LINE 590. The first name starts at N$(1), the second at N$(6), and so on, with the 10th and last starting at N$(46). In general terms, if you have an array

with fixed length elements like this, the Nth element will start at N x L - (L + 1) and end at N x L where "L" is the length of each element.

Incidentally, another way of getting information into arrays would be to INPUT the data when the program is running: Just change LINES 62 and 72 to INPUT X and INPUT A$ respectively and delete LINES 580-590 if you want to try this.

MANIPULATING THE DATA

Now we are at the stage when we can do something with the information. **LINES 110 to 160** use a FOR ... NEXT loop to show each pupil's score next to his/her name, as well as keeping track of a few variables. **LINE 120** prints the name and mark, while **LINE 130** keeps a running total of the numbers in the M array. **LINES 140 and 150** use counters to clock up the number of pupils who passed (mark of 40 or more) or got honours (55 or over) respectively. Total marks divided by 10 (number of pupils) gives us the average for the class (LINE 180). **LINES 190 to 210** display number of passes, fails and honours, using the two counters.

Finally, the program prints out selected names and works out the highest mark. **LINE 320** only shows the name if the M array contains a value of 60 or more. **LINE 330** sets up a variable called S4 which continually takes the value of the highest number it finds in the M array. Another variable, X, is used to flag the array position, so that the name and mark of the best pupil may be displayed (LINE 350).

A listing like this could easily be adapted for many other uses. For instance, the "best pupil" routine above could become the "High Score" routine in another program, as the same principles of selecting and displaying specific records apply. Another use would be in a club, to keep track of members' names (string array) and subscriptions (numeric array). This could list amounts collected and show who paid, using routines taken from the "Marks" listing.

INTERRELATED DATA

Let's suppose now that our teacher in PROGRAM 1 wanted to store the pupils' results from a series of tests instead of just the one. While it would be possible to set up a separate program for each test, this would involve lots of typing. It would also be impossible (without using a separate program again) to track individual pupil's performance, to see the trends in average marks, and so on. A much better solution in a case like this would be to use what's known as a two dimensional array to keep everything in the one program. 2D arrays are useful whenever you want to organise interrelated data that can be arranged in rows and columns. In this example, the rows could hold the names and the columns the different results. For instance, row 1 could hold the first student's results, with column 1 holding the mark from the first test, column 2 holding the second test, and so on.

Two dimensional arrays are set up using the command

```
DIM A(r,c)
```

where A is the name of the array and r and c refer to the rows and columns. It doesn't matter whether you put rows or columns first, so long as you remember the order used when inputting or analysing array data. Like the simple numeric arrays, the entries in two dimensional arrays are counted from zero. To take an example, DIM X(3,2) sets up an array called X with 4 rows and 3 columns, or spaces for 12 numbers altogether. We need two numbers (row and column) to specify one of the entries.

A PROGRAM FOR STOCK CONTROL

LISTING 2 sets up a sample stock control system with 5 items - Product A, B, C, D and E - each available in 3 sizes. The array sizes are defined in **LINE 40**. NI and LI are the number of items and the length of each one; NC and LC are the number and length of the categories. **LINE 50** DIMensions the arrays. The string arrays are used for product names (ITEM$) and sizes (CAT$), while the numeric array (STOCK) is used to hold the number of items in each slot.

The routines at **LINES 60 and 65** fill the string arrays, using the same procedure explained in PROGRAM 1. The stock array uses columns 1-3 (for the categories) and rows 1-5 for the different products (column 0 and row 0 are ignored). **LINE 70** reads the 5 entries for the first column and puts them in STOCK(1,1) to STOCK(5,1); the entries for the second column are put in STOCK(1,2) to STOCK(5,2) and the entries for the third column are put in STOCK(1,3) to STOCK(5,3). The nested FOR ... NEXT loops in 2 dimensional arrays can sometimes cause problems as it is very easy to get the rows and columns mixed up - just remember that the data for the first or outer loop comes first: In this program, each line of DATA in 920 - 940 refers to a COLUMN of the array, so the OUTER loop is used to read the columns. If the DATA lines held rows from the arrays instead, then the loop to read in the rows would have to be the outside one.

The rest of the program gives a few ideas on how information like this might be used. The first routine (LINE 300-) shows the data in a tabular form: **LINES 310-320** print out the row and column labels and the FOR ... NEXT loop at **LINES 330-340** displays the numbers. The next routine (LINE 400-) asks the user to input a product name and prints out the number of items in each category (column) for the product. This is done simply by setting up a variable (F, in LINE 430) to flag the row number of the item. A running total is kept too (LINE 460). The last routine (LINE 500-) prints category, product name and number for all stock below a given limit (in this case 2, set in LINE 510).

Other possibilities could include an option to print out the value of the stock (multiply the numbers in each row by the cost of goods for the row and add the totals), or perhaps a routine to list the number of items in a particular size category (amend the search routine at LINE 400). You could also have a routine to change data values as goods were sold or bought (input name and category to locate the row and column, then input the number for the array). All the routines could be run from a central menu.

THE GAME

Finally, the game on this issue's disk shows how numeric arrays can be used in a totally different way. Here, the "action" takes place on a 5 by 5 grid of red and yellow numbers on the screen. Pressing the spacebar selects a yellow/red number pair shown in one of the 25 grid positions. The objective is to select straight rows or columns of numbers within a given number of tries. Points are also awarded for picking corner positions.

The program uses a two dimensional array - SC(5,5) to look after the grid. All the elements in this are initially set to zero. The "red" numbers are held in the rows and the "yellow" numbers in the columns, so any pair of numbers is associated with a unique array element. The element is given a value of 1 when its numbers are picked. For instance, if red is

```
TO 1 REM ##############################
TE 2 REM # ARRAYS DEMO - PROGRAM 2 #
AQ 3 REM #            by             #
CX 4 REM #      Ann O'Driscoll       #
KA 5 REM # ------------------------- #
LQ 6 REM # NEW ATARI USER - JAN 96 #
TU 7 REM ##############################
NN 8 REM
ZE 39 REM  SET UP AND FILL THE ARRAYS 
JP 40 LI=10:NI=5:LC=6:NC=3
FP 50 DIM ITEM$(LI*NI),CAT$(LC*NC),STOCK(
   NI,NC),A$(LI)
JM 55 ITEM$(1)=" ":ITEM$(LI*NI)=" ":ITEM$
   (2)=ITEM$:CAT$=ITEM$
JS 60 FOR N=1 TO NI:READ A$:ITEM$(N*LI-LI
   +1,N*LI)=A$:NEXT N
DO 65 FOR N=1 TO NC:READ A$:CAT$(N*LC-LC+
   1,N*LC)=A$:NEXT N
UY 70 FOR C=1 TO NC:FOR R=1 TO NI:READ X:
   STOCK(R,C)=X:NEXT R:NEXT C
ZR 100 GRAPHICS 0:POKE 752,1:POKE 710,0:G
   OTO 300
QE 249 REM  PRESS A KEY SUBROUTINE 
TO 250 POKE 764,255:POSITION 2,20:? "Pres
   s a key to continue"
FI 260 IF PEEK(764)=255 THEN 260
ZM 270 RETURN
TT 299 REM  WHAT'S IN STOCK? 300 - 340 
TE 300 ? "[ESC,CLEAR]ALL GOODS IN STOCK"
PP 310 FOR R=1 TO NI:POSITION 2,R+4:? ITE
   M$(R*LI-LI+1,R*LI):NEXT R
ZA 320 FOR C=1 TO NC:POSITION 5+C*8,3:? C
   AT$(C*LC-LC+1,C*LC):NEXT C
OA 330 FOR R=1 TO NI:FOR C=1 TO NC
PU 340 POSITION 7+C*8,R+4:? STOCK(R,C):NE
   XT C:NEXT R:GOSUB 250
DS 399 REM  ITEM SEARCH 400 - 490 
BK 400 ? "[ESC,CLEAR]LOOK AT A PRODUCT":?
   :POKE 764,255:? "INPUT NAME OF ITEM T
   O SEARCH FOR":INPUT A$
JX 420 LA=LEN(A$):IF LA<LI THEN FOR N=LA+
   1 TO LI:A$(N)=" ":NEXT N
ZI 430 FOR R=1 TO NI:IF ITEM$(R*LI-LI+1,R
   *LI)=A$ THEN F=R
LE 440 NEXT R:?
DL 450 IF F=0 THEN ? "[ESC,BELL]NO RECORD
    OF ";A$;" IN STOCK":GOTO 490
NR 460 FOR C=1 TO NC:? CAT$(C*LC-LC+1,C*L
   C);" ";A$;": ";STOCK(F,C):TOT=TOT+STOC
   K(F,C):NEXT C
BG 480 ? "[ESC,DOWN]TOTAL STOCK OF ";A$;"
   : ";TOT
UA 490 GOSUB 250
AI 499 REM  ORDER MORE?  500 - 570 
XM 500 ? "[ESC,CLEAR]LOW STOCK CHECK":? "
   [ESC,DOWN][ESC,DOWN]RUNNING LOW ON:":?
EQ 510 LOW=2
OA 520 FOR R=1 TO NI:FOR C=1 TO NC
PH 530 IF STOCK(R,C)>LOW THEN 550
UR 540 ? CAT$(C*LC-LC+1,C*LC);" ";ITEM$(R
   *LI-LI+1,R*LI);": ";STOCK(R,C);" LEFT"
   :LW=1
HR 550 NEXT C:NEXT R:IF LW=0 THEN ? "NOTH
   ING!"
TX 570 GOSUB 250
HZ 699 REM  END PROGRAM  700 
ZE 700 GRAPHICS 0:CLR :POKE 764,255:END
BK 899 REM  -- DATA FOR THE ARRAYS 
HU 900 DATA PRODUCT A,PRODUCT B,PRODUCT C
   ,PRODUCT D,PRODUCT E
PM 910 DATA SMALL,MEDIUM,LARGE
TP 920 DATA 7,3,5,3,1
YD 930 DATA 8,9,6,2,3
YV 940 DATA 1,7,4,5,8
```

Underline = INVERSE CHARACTERS · [ ] = CONTROL + CHARACTER · < > = INVERSE CONTROL + CHARACTER

3 and yellow is 2, SC(3,2) is set to 1. [LINE 360 of the listing.] At the end of each game, the program checks for 1s in the corners [SC(1,1), SC(1,5), SC(5,1) and SC(5,5)] and awards a point for each one found. A couple of one dimensional arrays - R(5) and C(5) are used to hold the totals for the individual rows and columns - a value of 5 in any of these indicates a win and 4 points are awarded for this. The scoring is done in LINES 4000-4030 of the listing.

TO CONCLUDE ..

All sorts of other programs could use two dimensional arrays too - For instance, a travel survey could list the names of people questioned and holiday destinations, then you could search the numeric array for the highest numbers to show the most popular resorts. Or you could keep track of where your money goes by listing categories down one side and weeks across the top, then fill in the amounts spent in each slot. In fact, anything that can be organised in rows and columns on a piece of paper can probably be organised quicker and more efficiently by your Atari.

I hope this article has given enough information to set you on the way to trying out a few ideas of your own.

The game which accompanies this article is SPIN SEVEN and the full lsiting can be found on this issue's disk. The listing is also available as a TYPO-coded type-in on request

HYPER ACTIVE

Les Ellingham checks out the recently advertised Hyper Drive from Chaos Computers

You may be wondering why you should consider an enhancement for your disk drive when the drive seems to be doing a completely adequate job already. If you are not technically minded and have only barely got to grips with DOS then you might think that an 'enhanced' drive would be beyond your understanding. Is it worth splashing out around £30 to have a super drive if you are not a technical wizard?

Some drive enhancements of the past, like the infamous Happy Drive, were developed primarily as a means of copying commercial disks and came with long, complicated, manuals explaining how to crack various protection schemes. The Hyper Drive does this to an extent but it can also be of benefit to the most basic of users who would just like to see their drive working faster and with greater capacity.

Speed can be an important factor if you use your drive a lot but the most important consideration nowadays has to be the ability to back up your software. If your favourite disk gets trashed tomorrow, all you can do is throw it away. The chances of you finding a replacement copy of most serious applications is almost zero and the software publishers have long ago disappeared or moved on so they will not be able to help. If you have software such as Print Shop, Syncalc, VIP or even some of the classic games it really is worthwhile trying to back them up so the Hyper Drive should be well worth considering.

SOME BACKGROUND

The Hyper Drive has been around for some time having been developed in the States at the height of Atari's popularity. I can't recall it being widely advertised or sold in this country although anyone who read the great American Atari magazines like Antic and Analog would be aware of it and many owners bought units from the States. One such person was Paul Hollins who purchased a Hyper Drive shortly after acquiring his first disk drive. He was so impressed that when he got a second drive a year or so ago he contacted the manufacturers to see if he could get another unit. The company concerned was no longer trading but still had a number of Hyper Drive boards available and so Paul decided to buy these and set up Chaos! Computers to make the Hyper Drive available once more.

Like every person still supporting the Atari Classic, Paul is a keen Atari enthusiast and has no pretensions of making a living out of selling add-ons for the Atari. Chaos! Computers is not therefore a big company trying to make fast buck and reservations expressed by some readers about their reliability and trustworthiness can be dispelled. Like all of us Paul has to make a living by holding down a full time job which often has to take priority over his Atari interests, so if you do experience a few delays should you decide to order a Hyper Drive or send for details, please don't assume that you are being ripped off.

LET'S TRY IT!

Right, let's assume that you have taken the plunge and sent off your £30. What you'll get is a foil-wrapped PCB containing the Hyper Drive chips, a 26 page installation and operating manual and a copy of the Hyper Drive Version II software disk. For the time being you'll also get a free copy of MyCopyR!, a straightforward disk copier that will let you copy your unprotected disks at breakneck speed!

The manual itself is comprehensive and, at first sight quite daunting as it goes into the many facilities of the Hyper Drive but you don't have to understand it all in one go. Indeed there are several facilities that you may never use so don't get too bogged down in technicalities at this stage. Best thing to do is get the board installed and run through the manual with the thing actually operating.

GET THE TOOLS OUT

If you have never opened up a disk drive before, don't worry as the instructions will take you through the procedure step by step starting with a list of the few tools and other bits and pieces you will need. Nothing fancy, you are sure to have them at hand.

Removing the case is quite straightforward but when you have done so take a good look inside to familiarise yourself with the various wires connecting the drive to the bottom circuit board. You will need to remove and refit these but they are all connected with simple push-on plugs. Looking from the front there are five push on plugs at the back on the left hand side and these are the first to be removed. Don't yank them off yet or you'll make the mistake I did. Look at them carefully and you will notice that the centre plug is stepped out from the others and must be refitted this way round. It will fit on either way and I made the mistake of fitting the plugs back in a neat line. If you should do this, don't worry as, despite the dire warnings in the manual, no harm seems to be done although the drive won't work!

Once the visible plugs have been disconnected you can lift up the drive mechanism to get at a couple more plugs underneath and with these removed you can put the drive mechanism aside. It is best to mark one side of each plug with a felt tip pen so that you can refit them with the marks all facing in the same direction.

Next you have to remove the aluminium box

which shields several chips on the main circuit board. This is easily done by straightening a few twist tabs (some drives may have screws) and lifting the box clear. Now you can see the chips and this is where things can get scary if you are of a nervous disposition! There are five chips in view and you need to remove two of these to fit the Hyper Drive board. A diagram in the instructions makes it quite clear which two are to be removed and the procedure is fully explained but if you have never taken out a chip before it can be quite nerveracking. The chip has to levered out of its socket little by little from each end. The secret is to lever out only a tiny amount each time and not rush the job. If you pull up too much on one end the pins will bend and you will never get the chip back in should you need to in the future.

All instructions for removing chips suggest a flat blade screwdriver but you might find it easier to use the slightly curved end of a teaspoon with which it is easier to get the right leverage. If it sounds too daunting don't be put off, it is not as difficult as it seems and you are unlikely to do any damage.

Once the chips are removed the hard part is over and you need only push fit the hyper board into the two empty sockets. Again take your time and be sure that all of the pins on both chips are lined up with the sockets before your exert any pressure. Once the pins are seated in the sockets you can press quite hard, directly over the chips, to ensure that the board is correctly seated.

Now it's simply a matter of reversing what you have done so far. Providing you have marked your plugs so you get them the right way round it should be quite easy to get the drive back together again. Congratulate yourself and go and have a cup of tea while reading through the rest of the manual.

Anyone can fit the Hyper Drive, even those who have never opened up a computer or disk drive before. The installation instructions are quite comprehensive if you read and follow them carefully. They might be better in a Step 1 ... Step 2 format but all the required information is there. The only thing which could be clearer is advice on refitting the plugs in the correct order but Chaos! Computers are aware of this and may well have amended the documentation by now.

BOOT IT UP

Once the drive has been reconnected, switch it on, insert the Hyper Drive software disk and switch on your computer. Unless you made the same mistake that I did in refitting the plugs the drive should spring into action with a series of rapid beeps as the software loads.

A simple menu presents you with a series of options and this is where you need to begin to read the manual. Or do you? Not necessarily as you now have an enhanced drive that will automatically run faster unless you tell it otherwise. In fact you now have a programmable drive with a degree of intelligence in that it can recognise certain types of software and run them accordingly.

For now take out the Hyper Drive software, insert the MyCopyR! disk and reboot. Now try copying a few standard disks and you'll be amazed at the speed. Table 1 shows you how long it takes to copy a complete disk compared to a standard drive and one fitted with a US Doubler. The secret is that the Hyper Drive uses its own memory to store complete tracks rather than individual sectors and can write a whole track in one go. If you watch and listen you will see and hear the difference.

So far you have learned nothing about the Hyper Drive but you already have a super fast copier and your software can now load and save at lightning speed.

TRY THE OPTIONS

You will recall that I stated that your drive is now programmable and it is important understand how this works. Essentially you can send commands to the drive which it will act upon and remember until you instruct it otherwise or switch it off. Bear this in mind when trying the various options.

1. DRIVE OPTIONS

Whenever you switch on your drive from now on it will automatically be in Hyper Drive mode but you may find that some heavily protected programs object to this and will not run. The first option on the Hyper Drive menu is to **SWITCH OFF HYPER DRIVE** and by selecting this you tell the drive to revert to normal 1050 status. The drive will now remain in this mode until you switch it off. Rebooting the computer without switching off the drive will treat the drive as a standard 1050 and all software should load except that you will now longer be able to use the special Hyper utilities!

Switching the drive off for 5 seconds returns it to Hyper Drive but you can also erase programming by selecting the **INIT** option on the main menu.

Option 3 allows you to **CHANGE THE DRIVE NUMBER** without fiddling with the dip switches on the back. This means that you can boot up the drive as drive 1 and then rename it to drive 2, 3 or 4. Just what this achieves I am not sure. The obvious thought would be that you could use programs that require two drives but as most of these would need to be autobooted you would not get the chance to change the drive after the program is running. Option 4 allows you to **SET THE MOTOR OFF DELAY** although this will only save a second or so and hardly seems worthwhile.

Option 5 will be important to many users since it sets the drive in **US DOUBLER EMULATOR** mode so that you can use SpartaDos. Hyper Drive cannot be installed with the US Doubler so you would have had to remove your US Doubler chip if installed. Don't worry though as all facilities of the US Doubler are covered by the Hyper Drive except formatting with Sector Skew which is no longer needed anyway as the Hyper Drive can read all sectors at a faster rate whether Sector Skew or not.

The final option on this side is **FAST WRITE** which allows you to set the drive up to fast

TABLE 1 - Times to copy a full single density disk using MyCopR!

	Read	Format	Write	Total
Normal Drive	78 secs	34 secs	83 secs	195 secs
US Doubler	78 secs	20 secs	78 secs	176 secs
Hyper Drive	35 secs	22 secs	50 secs	107 secs

Disk used was a standard DOS 2.5 format disk with one free sector

buffered write with verify. In fact all writes will now be verified since Hyper Drive can do this faster than it can without verify! Some software, such as the MyCopyR! which you tried earlier, automatically switch on the fast write when booted.

When the drive is in fast write mode you might notice something strange when you take a disk out of the drive after writing. If you do not wait until the motor has stopped the busy light will flash on and off continuously. At first I thought this was a fault but it is in fact a warning that the drive may not have finished writing. Because the Hyper Drive holds information in its own memory you may get a situation where your software tells you it has finished writing but the information is still buffered in the drive. In practice it doesn't seem to make any difference but to be safe you should wait until the busy light goes off before removing a disk.

2. SECTOR COPIER

This a straight sector copier for duplicating standard non-protected disks but is really redundant if you have MyCopyR! Use this option if you want but you will find MyCopyR! faster and easier.

3. HYPER COMPACTOR

This gives you the opportunity to compact several self booting disks onto one disk but as it is more properly part of the copying routines we'll come back to it later.

4. ENABLE TRACER

Now it starts to become more involved! This option sets your drive up in a tracer mode to give you information about various disks that you might want to copy. Information such as which tracks are used is needed for some copy routines so has to be obtained from this option.

Again the drive is specially programmed to remember tracks that are accessed during a loading procedure. If you boot a disk after setting the drive in trace mode the Hyper Drive will remember which tracks have been accessed and you can then use option 5 - **DISPLAY TRACE** to check the information. The drive will remain in trace mode until it is switched off again.

As the use of the drive is now becoming more involved, almost two pages of the manual are given over to using this mode and I won't go into further detail here as it won't make a great deal of sense unless you are actually using the drive.

YOUR OWN FAST DOS

Side 2 of the disk starts off with an option to use **HYPER FAST DOS** which will allow you to format all of your disks in fast read and write mode and perform all of the usual DOS functions at much greater speed.

Step by step instructions are given for you to create your own Hyper Fast Dos master disk to replace the standard Atari DOS. One thing to be aware of here is that when the instructions tell you to boot DOS 2.0S, it really means that as the initialisation program will not run with DOS 2.5. That shows you how old the program is! If you don't have a copy of DOS 2.0S you can use any of the early disks from the Page 6 PD library which all have DOS 2.0 on them.

DIAGNOSTICS

A built-in diagnostic routine allows you to check that your drive is working correctly.

Among several tests you can perform are testing whether write protect switches are working, whether the drive operates correctly in all formats and whether the High Speed data transfer is operating at optimal speed.

Perhaps the most useful tests are RPM measurement and read and write tests on various parts of the disk.

The diagnostics are useful if you are having problems with your drive although there is no advice on what to do if you encounter problems so you might worry yourself unnecessarily. If your drive appears to work without problems, leave well alone!

BACKING UP DISKS

At last we come to the facility that most people will want a Hyper Drive for - backing up your irreplaceable commercial software. Here we have some good news and some not so good news. Backing up many programs is a breeze, not much slower than copying unprotected disks, but others will take a good deal of work and, of course there will be one or two programs that you will not be able to back up. Don't expect miracles.

Five or six pages of the manual are given over to copying protected disk and it can get rather heavy at times. Super programmers will go through the instructions understanding every word and be able to work out how to copy almost every disk but most of us are not that clever and need to back up our disks without too much effort.

Unfortunately I do not have a lot of software available, having sent virtually everything out to reviewers over the years, so I cannot give you a blow by blow account of what will copy and what will not. Some very good news to start with though is that copying PRINT SHOP and associated Broderbund disks is simplicity itself. Just select the Copy mode and follow the prompts which tell you when to insert source and destination disks. A few passes and you will have a perfect backup of Print Shop so you can put your original away somewhere safe.

HEAVY PROTECTION

If Print Shop can be copied so easily then there are sure to be others than will copy without fuss or bother, but some publishers got rather protective about their software and introduced devious schemes to stop disks being copied. The Hyper Drive Copier can cope with many of these using a set of predefined backup routines.

On side 2 of your disk you will find a number of 'PDB' files that you can use to back up selected programs. The selection available seems to be a bit of a disappointment but there is no indication anywhere of what programs can be successfully backed up without using these files so it could be that many more familiar programs can be backed up with the same ease as Print Shop. The files shown give an indication of the age of the software with titles that have long since passed into folklore such as SYNCALC and SYNFILE alongside obscure titles such as SUPER BUNNY and RAINBOW WALKER. Among those that you will recognise are KENNEDY APPROACH, SILENT SERVICE, ALTERNATE REALITY and TEMPLE OF APSHAI and there are many more.

If you use PDB files then the actual backup procedure is quite straightforward involving nothing more than a few swaps between source and destination disks.

Some copied programs will only run on

drives fitted with Hyper Drive which is a welcome deterrent to having loads of pirated copies around but will not affect those copying only for their own personal use as they will, of course, already have the Hyper Drive.

PROBLEM DISKS

If your disk will not copy with the straight copier program and does not have a PDB file then you may still be in luck although you will need to do a lot of investigation using the facilities provided. There is full information provided on how to go about scanning and tracing disks and setting up special copying modes but it is not for beginners. Experienced users may have already backed up most of their collection using other methods.

COMPACTING DISKS

As stated earlier certain self-booting disks can be 'compacted' onto one disk and selected from a menu. The term 'compact' is rather misleading, however, since the programs are not shortened to fit on the disk but rather are relocated so that they can use consecutive sectors. Quite often it is only possible to put two programs on one disk so the usefulness of this option is somewhat limited. Additionally the programs can only be booted from a special Hyper Drive initialised disk which uses a rather plain menu selector.

If you have hundreds of disks that you can't find room for this might be useful but it is probably just as easy, and safer, to back up individual disks and you will also save a great deal of time.

A LITTLE MORE

Right at the end of the manual is something that is of little practical use to most owners but something that I dreamed of a few years ago. By using several Hyper Drives together you can make multiple copies of a disk in about the same time as it takes to make one copy. The Hyper Drive software can read from one drive while making copies to other drives at the same time.

In the days when we were copying hundreds of PD disks a day, how I longed for a facility like this. Now that I have finally found out that it is possible, so few people are buying PD disks that it wouldn't pay to buy even one additional Hyper Drive!

SHOULD YOU GET ONE?

Although there are some limitations on backing up heavily protected software, the answer is an unqualified yes. At the very least you will be able to back up essential programs like Print Shop and you will find that loading and saving files and making backups of everyday disk is a whole lot faster.

The Hyper Drive is not difficult to install and its use in backing up disks which can no longer be obtained makes it one of the most essential enhancements to your system. Chaos! Computers are to be congratulated in taking the initiative to make the Hyper Drive available once again and deserve your order.

The price is £30 including the software and a free copy of MyCopyR!. Chaos! Computers have an advertisement in this issue so check it out. ●

DISK BONUS

Two games from Andy Guillaume and Visionnaire Software

ALIEN ATTACK

Aliens are infesting your ship - shoot as many as possible before your three commandos are eliminated.

The fire button starts the game. The game screen consists of a map of your ship at the top with alien positions shown. A menu bar shows the available options depending on your current position on board the ship. Next is a picture of your current room. On the left of this is the remaining ammo in each of your three commandos' guns. On the right a heart-beat monitor shows the currently selected commando's status. At the bottom is the commando select bar with their respective health shown - once this reaches 0 a commando is dead.

Move the cross-hair cursor with Joystick 0. On the menu or commando select bar the FIRE button activates the choice or selects a commando. On the picture area in-between, the FIRE button shoots your gun. By moving the cursor above the menu bar onto the map and pressing FIRE you change to movement mode. The flashing dot shows your commando's position. To return to FIRE/SELECT mode press the FIRE button.

If you move near an alien return to FIRE/SELECT mode and shoot it if it appears in your view area.

The other rooms on the ship (orange areas on the map) contain extra systems for your use. Some will work and others not - listen for the ship generators (which MUST be RUNNING and WORKING for the systems to work) and warning sounds which knock-out these systems.

It's all up to you now.....

LIGHT CYCLES

Guess what this is! Originally written just as a TWO player game I never got around to speeding up the ONE player mode but you can play it. At the title screen, press OPTION to select 1 or 2 players and press select to alter the game speed, from 1 as the slowest to 9 as the fastest. On TWO player mode you can set the game length by the score to be reached before a player wins. Use the UP and DOWN cursor keys to alter the "goal" score. The START key or FIRE button starts game.

These games are the BONUS on this issue's disk. If you are not a disk subscriber you can still obtain a copy for £2.95 from NEW ATARI USER, P.O. BOX 54, STAFFORD, ST16 1TB. Please make cheques payable to PAGE 6 PUBLISHING or order by telephone with your Visa or Access card on 01785 241153

The CLASSIC PD ZONE

with Stuart Murray

We abandoned our shuttle in the lifepod and managed to slip away undetected. The engines cut out hours ago and we have been drifting in free space ever since. Unless picked up soon, we will never see Earth again. Check the computer for anything we can use ...

SSSSSSS!

SERPENT is a Turbo BASIC clone of Datasoft's Nibbler. A sparse yet well-presented title screen introduces you to the six game options. There are one and two player options, each with the ability to begin from levels 1, 6 or 11. There are twenty levels on the disk.

Press Start to begin the game and the starting level is announced. Be ready with your joystick to guide the head of the serpent - it begins to move just after the level appears. You must move the head around the screen and collect the segments. As soon as a segment is collected the serpent grows in length. You will soon find yourself in control of the head of a very long serpent so watch that you don't crash into yourself or block yourself in! Do so, or hit a wall, and you will lose a life. You begin each game with five lives so you can afford the odd lapse of concentration.

The two player option is worth mentioning because both players compete on the same screen. As each serpent grows in length so it can trap the other in between a wall. This creates a very competitive and enjoyable challenge.

The graphics in Serpent are typical of many Turbo BASIC games. They are colourful although hazy at times. The scrolling of the serpent is a little jerky but certainly fast enough to please most game players.

The presentation of the scores and remaining lives, level introductions, bonus counts, etc. plus the widespread use of sound effects give Serpent the feeling of an arcade coin-op. There are even power-ups on later levels which reduce the length of your serpent, cut off all segments or add to your score. Just watch out for holes in the play area!

As the levels progress so the segments become harder to reach, often placed in tight passages or corners of the play area. In later levels, walls are strategically placed to make the player work hard for his segments! Add to this the almost bionic speed of the serpent and you may well end up throwing your joystick against the wall ... before beginning again.

Thankfully there is no time limit to each level. The action is so fast anyway that some levels are completed within seconds and you simply cannot take your eyes off the play area.

Serpent is a quality title. With this standard of public domain software the Atari 8-bit will remain alive and kicking well into the next century!

CLASSIC PD ZONE RATING: 82%

CLASSIC EARLY DEMOS

This disk contains twenty eight BASIC programs selectable from a menu. Most are small listings which can be examined and used in your own programs.

There are twenty graphics demos ranging from spinning colours to a complete New Year presentation of flashing lights, countdown and fireworks. There are 3D vector graphics, player missiles, starfields, etc. All can be listed, examined and altered as part of the learning process of BASIC programming.

Sound effects are included in some of the graphics demos. The waterfall demo is particularly impressive as the sound roars from your television speaker. The other programs on the disk demonstrate music, scrolling, joysticks, animation, etc.

This selection of BASIC programs is basically ... basic! There is nothing outstanding on the disk but with twenty eight programs there is at least something for everyone. Consider it a stroll in the park for your trusty 8-bit. Classic Early Demos is an interesting collection of sector fillers, except for once the sector fillers are the main ingredient.

CLASSIC PD ZONE RATING: 63%

The disks reviewed were:

269 - SERPENT
270 - CLASSIC EARLY DEMOS

HEY! HEY! it's The TIPSTER

Just as I was scrabbling around my cage scratching and searching for new tips along came a veritable bounty from two keen readers who want to keep The Tipster alive and kicking. These tips are gratefully received and are here for your edification. Without more ado let's get on with the James and Andy (and possibly Bryan) show!

Andy Guillaume who supports us with some excellent programs also finds time to play games and has these tips for you.

ARKANOID

Use Paddle Controllers if you can. With a Joystick you have to wait while the bat moves from one side of the screen to the other, with Paddles you just turn the dial to a particular angle and the bat moves instantly to its new position. After a while you get used to moving the dial relative to the bat position. If the ball comes to one side and a useful pod that you want is falling on the other, it's just a matter of returning the ball then quickly twisting your hand on the Paddle dial to instantaneously (almost anyway) appear at the other side of the screen!! I can reach the last screen against Doh almost every game.

By the way my Paddles are the ones I got with my 1981 VCS box set, I have only had to replace one potentiometer, both buttons and the other Paddle still work fine!

PHAROAH'S CURSE PASSWORDS

Level 1 - **SYN**
Level 2 - **SYNIST**
Level 3 - **SYNISTOPS**

GET INTO THE DROPZONE

Pick up your men as soon as possible and ferry each one back to the Base, just keep at the bottom of the screen and watch for enemies.

Shooting Blunder Storms:

Lightning - look for the flash before the strike.

Rain - you can make it underneath before it reaches the bottom if you're at full speed.

For maximum speed don't bother trying to shoot any other enemies while moving your men. Keep an eye on your men's positions while doing this via the Scanner at the foot of the screen, any Androids will appear over the men's positions - the Call sound and Android direction arrow help here. Get there and destroy them as soon as possible. If the Android gets dropped off, only go to shoot it if you're sure you can make it before one of your men gets killed. Otherwise, wait until the Nemesite appears and shoot it. Try not to use any Cloak or Smart bombs during the course of the levels until it's really necessary.

On Trailer Invasion levels, first get your men in as before then engage Cloak and go across the area in one direction shooting all the Spores. After many Trailers have been released, use a Smart bomb to kill them - do this properly and you'll get enough points to be rewarded with another Smart bomb virtually straight away!

If an Nemye appears you've taken too long completing the level, use Cloak first and a Smart bomb if you fail to shoot it.

Always use the scanner to line up an enemy off screen before you encounter it and start shooting before you arrive. I've scored over 500,000 many times with no cheats at all.

More from Andy next time!

HAVE MERCENARY ON ME!

James Mathrick is a new reader and a newcomer to The Tipster column but, boy, has he sent in a bumper crop of tips for you to enjoy. If they don't all fit in this issue, look out for more from James in the future. Let's go.

MERCENARY I and II

For all those who hadn't yet realised the cheese is actually a super-fast spaceship, and will easily get you up to the colony craft. I think the cheese occurs in the Second City, although I'm told you can fly the table in the Palyar briefing room. There is also a hanger in the wastelands, beyond locational sensors with a concorde inside, and I think that can also reach the colony craft. Also, the novadrive is in this complex, although you will need a couple of keys. For absolute beginners, keys are the huge shaped blocks left around the complexes. The spider's web can be used as a skeleton key, although it can only be picked up if you are in possession of the kitchen sink (colony craft kitchen). The kitchen sink can be used to pick up almost anything in the game.

Most of the objects in the game can be sold to either the Palyars or Mechanoids for money (e.g. gold to the Exchequer, Medical Supplies to the medical centre etc. (Anyone any idea as to where the essential (Pepsi) 12939 supply goes?). The aim of the game is to escape with as much money as possible. Sell the large box to the mechanoids, but everything else you can (including the Mechanoid!) to the Palyars.

Shoot all the Mechanoid occupied positions - you will need the metal detector for this. When you are over a Mechanoid installation, it will change the colour of Benson's screen to blue. When over a Palyar installation, the screen will go green, and a red screen indicates the building is not owned by anybody. If anyone knows the location of the metal detector, however, please let me know.

When you hold the anti-time bomb and fire at the remains of a building, it will instantly rebuild itself.

In order to start the game with all youR credits, steal the Dominion Dart, and fly backwards at -625 to pick off the attacking Palyar. (This technique will work for any attacker.)

Apparently (I have not yet finished the game) the anti-grav can be used to pick up the neutron fuel, and the interstellar craft, so you can relocate it outside the defence complex (in the Second City), the anti-grav is supposed to be at location 00-00, Altitude 88013.

If you take the aerial (found in the colony craft) to the broken comm room in the underground complex, you will be offered an intergalactic craft to buy, and if so, you will be given a rendezvous point.

On the edge of the City, you should see a ship flying around - go up to it and take it for more speed, but if you wish to board it you will have to drop it in a hangar.

The escape craft is supposed to be at location 3-15, but I think you will need the pass to get to it.

This next tip is hearsay, but it could be worthwhile, as it tells you how to get into the author's cheat room in the Second City!

When you start, board the Dominion Dart and fly to a height of over 350m then level out. Press 9 and keep > pressed until you reach a speed of around 1781 kph.

Fire a bullet and as you fly close to it, pick it up by pressing T. Then fly back to location 08-08 and take the object that you started the game inside. At this point fly to any elevator, and go underground and walk to the triangular door. You will be able to walk straight through, where you can have every key, get into any hangar, out of prison, amass millions of credits, find the novadrive and the intergalactic star-

There's more! ☞

ship and escape. As with some of these tips, I don't know whether it works, but if anyone knows it does, or doesn't, let me know.

All of the craft have different maximum speeds, which are reached by pressing 0 and holding > down. Here are some of the craft in Mercenary I:

In hangar 09-05 there is a land based vehicle
In hangar **-** there is the concorde
In hangar 03-00 there is the Mechanoid Ship
In hangar 11-13 there is the cheese
At airfield 12-13 there is a land based vehicle
Also at hangar 81-35 there is the gold for the exchequer and a key.

I cannot remember which game it was, but when in the room with no exits, how do you escape, and does it have anything to do with the two dots that move across the wall?

Never go into a prison, or a door marked with a skull and crossbones, or walk off the colony craft - you won't be killed, but you will get a bit stuck.

If you do not wish to, or cannot, pick off an attacking craft, then land your vehicle (if it is airborne) and press L to leave it. You will be 'killed' but you will be resurrected next to the vehicle - it will not have been destroyed in the attack.

If you do find yourself vehicle-less during the game, with too long a way to walk, then drop all your objects (D), and press CNTRL-Q to quit, and get a new craft. Then leave the new craft and retrieve all your belongings. If you do not do this then you will still receive a new craft, but your objects will be scattered around.

When I started playing the game, I got slightly confused with the elevators. For anyone else in this situation - whilst in the underground complexes, you do not need to find an elevator cage to get back up to the surface. All you have to do is to be anywhere in hangar and press E.

GHOSTBUSTERS

Finally from James (ther'll be more next issue) is little tip for GHOSTBUSTERS. Enter no name and the account number 31222646 for $999,900. Has anyone ever reached the final game?

MORE ZORK

Bryan Zillwood knows a few more things about Zork that were not in Mark Stinson's article last issue, so if you are still stuck, read on.

ZORK I

To go through the maze from the troll room to the grating type - W S E U GET KEY SW U E W W NE then use the key to open the grating

To reach the Cyclops room from the troll room via the maze type - W S E U SW E S SE

ZORK III

The Royal Puzzle solution (p=Push)

PE S S SE PS N NE PS PS E NE PW SW
NW NE PS SW PE NE PS NW N N N PE SW
S SE NE N PW NW PS PS W NW NW PS SE
SE SE NE PW PW SW PN PN PN NW U

To reach the Dungeon entrance - Drop the timber to break the beam. Press the button to open the mirror panel. In the box lift the short pole and push red until the compass points north. Lower the short pole and push mahogany until it reaches the end of the channel. Lift the short pole and push yellow until the compass points south. The lower the short pole and push pine.

MORE ZORK HELP NEEDED

James Mathrick thanks us for the Zork hints last issue but is still puzzled as to how to get over the rainbow. Can you shed any light on the problem? James would also like to know if there are any cheats known for **OPERATION BLOOD**.

KEEP 'EM COMING!

A great big bunch of thanks to those mentioned in this issue's Tipster and those who sent in tips for the future. Next time you could find your name in The Tipster column but only if you send in a hint, tip, cheat, map or solution to your favourite game. Write it down now, and send it to the following address

THE TIPSTER
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A COUPLE OF ROMS

BASIC CARTRIDGE

Some programs, especially some early public domain programs won't run on the XL/XE but they will if you plug in the old version of Basic.

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MASTER CHESS ✓
An excellent chess simulation with all the correct moves, various openings, in fact everything to keep you challenged

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An old favourite in which Mr Dig has to dig for hidden food supplies in the 'Meanie' territory below ground.

NINJA ✓
Blasts the belt off all other martial arts games! It says on the inlay! Someone sure reckons this is the best punching, kicking, ducking and diving game of all

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A challenging real life simulation which combines Pool and Snooker on the same cassette. An absolute must for both enthusiasts and beginners alike.

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Save the last humans on Xenon. Take your ground attack ship through this 3D scrolling mega shoot-em-up with great graphics and unbelievable soundtrack

PENGON ✓
Can you save Penguin Willy from the ferocious mutant sea lions? Stun them by knocking them against the walls or crush them with sliding ice blocks

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Equipped with the latest in anti-gravity pods and Laser weaponry, battle your way through each of eleven dungeons

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Only seven seconds left to save the planet! Universal Hero has to save his skin and everybody else's by finding bits to repair a shuttle

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Letterhead Designer

UTILITY

SWAP

Mike Fuller presents a useful utility to use letterheads created with the excellent Letterhead Designer directly with TextPro

Many of you may have used the program Letterhead designer, which is available from the Page 6 PD library, to design you own letterheads. Although this is a great program you do have to, either print out a stock of letterheads, or else use Letterhead Designer to print out your headed paper and then feed it through the printer again when you compose your letter. Wouldn't it be nice if you could just use your word processor to print it all in one go? Now you can!

CONVERT TO TEXTPRO

SWAP is a Turbo basic program, the purpose of which is to convert "HED" files from P. Kirton's Letterhead Designer into files which will print correctly from TextPro 4.0. The file suffix .HED is replaced by .HDR to avoid confusion.

LETTERHEAD USERS

*Check out the new PD disks this issue for some great news. Reader Brian Arnold has laboriously converted almost 500 Print Shop icons for use with Letterhead Designer. These are available on **FOUR DOUBLE SIDED ENHANCED DENSITY DISKS**. You will be spoilt for choice!*

The SWAP menu offers just two functions, Load and Save:

Load Letterhead: From the directory of HED files displayed, select the file for conversion. The file is loaded and converted after which control is returned to the menu.

Save Letterhead: Prompts for a file name and then appends the HDR suffix when saving.

With just these two functions it is easy to save more than one copy of the HDR file.

SOME PROBLEMS

Unfortunately the program is not foolproof. This is because over one hundred codes per line may need to be replaced with TextPro friendly printer codes. TextPro cannot, to the best of my knowledge, support that many. However, it is unlikely that the fifty or so codes available will all be used on one line, so to get the best probability of error free function, the program resets the codes at every line. The demonstration letterhead uses twenty-nine codes for the third line, which is the highest number of codes on one line I have come across to date.

The other minor problem is that the underline option seems to hit a snag with TextPro.

A small 'glitch' appears at the centre of the line when a code "10" (line feed) is sent. This is because in the graphic mode the printer requires some five hundred columns, which TextPro cannot support, so TextPro throws in a line feed, that is, a "10" is sent when the line needs a "24". To get over this, the program incorporates a narrower line constructed from the Epson character "196" so you just get a thinner, but glitch-free, line.

MATCHING YOUR PRINTER

If you find that CHR$(196) on your printer does not produce a line or you require something bolder or prettier, check you printer manual for a suitable replacement and replace the code "196" in the TextPro file. This is near the end of the letterhead data (document page 1, line 14) where two lines of inverse 1's are preceded immediately by a short set of embedded commands ending in: (inverse) 1=196 . Change this instruction to (inverse) 1="your number". To verify that you have line 14, use TextPro function "CONTROL W" which displays the page and line numbers at the top of the screen.

Alternatively, list line 3310 of "SWAP" and replace the number 196 at the end of the line, with the CHR$ number of your choice; then save the program. This will place your preferred code in every underlined letterhead (HDR) file. Remember the program is in Turbo basic so make sure you boot up Turbo basic first!

Epson users (I use an LQ 100) may find that CHR$ (205) gives a good effect; this code produces two close, thin, lines. Alternatively, CHR$ (95) produces a single fine line. These codes are drawn from the "PC 437 (USA, standard Europe)" character table.

PRACTICAL USE

So, what is the purpose of all this? Well, with your letterhead as a TextPro file, you can print headed letters without having to go back to Letterhead Designer first. This is particularly useful if your letter is more than one page in length as you will not experience the paging problems associated with printing from part-way down the page. Furthermore, printing additional copies could not be easier.

DUE CREDIT

Now an admission. I cannot claim full credit for this program as at least half of it has been adapted from P. Kirton's original Letterhead Designer program. However, it was me who did the donkey-work of comparing files, sweating over HEX dumps, and writing the routines needed to accomplish the file conversions. Many thanks to P. Kirton, may I, one day, meet him to say so in person.

Well what are you waiting for? Get typing!

ANY PROBLEMS?

Write to me, Mike Fuller,
c/o 59 Corporation St., Stafford ST16 3LT
between October and June
or
4 Whitehouse Cottages, Sot's Hole Bank,
Holbeach St. Matthew, Spalding PE12 8EJ
between July and September

Sorry about the funny address periods, it's the price of being a full-time student.

The SWAP program is on this issue's disk and is also available as a TYPO coded type-in listing for those who want it. Check the inside back cover for details of how to obtain the listing.

TOOLS OR TOYS?

In this article, written some time ago, Doug Brock explores how far home computers and the industry should evolve. Some things have changed in the past few years but could it be even better?

Can you remember when the only source of entertainment in your home - the only electronic marvel - was the valve radio in the living room? Or perhaps you recall when all cars had starting handles? Or when delivery men used horses and carts? You may claim to not actually remember such things, but the point is, they are not that far back in history at all, and already we have lap-top publishing! Wow! But is technology dragging its feet?

NOT YOUR CHOICE

When Marconi was a lad, he wasn't distracted by whether or not to standardise his music collection on to CD or LP or DAT. He had a bright idea and simply turned the invention into hardware and profit. Nowadays the dusty, forgotten shelves of bought-out patents are one thousand times as full of bright ideas as the high street stores are. What we have available to us on the electronics consumer market is as 'controlled' and fickle as the BBC Radio 1 play-list. A long time ago someone was hailed as a hero by businessmen for dreaming up the floppy disk drive, and a million home computer users cheered and threw away their cassette recorders, but one day mechanical disk drives will be as obsolete as solar powered torches.

The philosophical overview may be that at least we have made amazing advances since the Spinning Jenny and that we should all be happy and satisfied. However, the multitude of computer formats and general architecture is a self defeating concept. Every so often, just like soap powders, a new breed of computer comes along. The manufacturers already have new models in the pipeline, which could take this one to the cleaners and back - twice, but the market is milked to the full and then the newer model is launched - ad infinitum.

REAL NEEDS!

The 'old' Atari 800XL still works well, and many people are still happily playing games and doing the household accounts on them, and they know that a PC and hard disk could also make the tea, but even so, at the other end of the scale even Sperry-Univax machines are becoming obsolete, relative to their changing allotted task.

CD Roms will probably go the same way even though they are only just becoming widely accepted. Already manufacturers are talking about organic memories, optic memories and ultra low power solid state memories, and possibly they will one day arrive in our shops, only to be outmoded by the disposable computer, free with a packet of Corn Flakes!

So what actual needs do home computers have to satisfy? There is certainly not a need for a green screen, clicky keyboard, mouse, dedicated company database, maintenance contract and viruses is there? A few people do play games on them don't they? But that's a little like buying a Rolls Royce just for the vanity mirror! So as things stand what are they for?

Of course a home computer can be a hobby in itself. There need be no end product. A home computist can play games, write the odd program, and run one or two serious programs like finance and budgeting, and there's no shame in that, but the use of computers in the home has really stagnated into those two main areas.

THE STANDARD MODEL

Mention 'computer' to a reasonable man in the street and he'll think of a screen, a keyboard, and his kids zapping aliens. On reflection, he'll mention the 'black-box' in his car and they have computers on planes as well don't they?

Look in the Exchange and Mart and you will find what the motor trade call 'bolt-on-goodies', ranging from chrome rocker covers to hub caps, to racing cams, wide wheels and door panels. Now, for some reason, everything in the computer trade has to be a 'user friendly peripheral' and, of course, you are no-one without your RS232C cable! But, look in Exchange and Mart under Home Computers and you'll find a really limited scope. It is a small market.

Home computing is perhaps a little like CB radio in one major respect. It is a slightly perishable consumer leisure market. Unlike businesses, home computer customers mainly buy home computers because they want one. If they upgrade, it's because they want to, not because they need to. The same is generally true of most electronic home consumables - Hi-Fi, calculators, camcorders, alarm clocks etc. Therefore you can't rely on natural changes in the market producing a continuing demand. A farmer could wear out one tractor a year, but a humble spade can last a man-in-the-street a lifetime. Therefore, do you inflate the price of spades, or do you constantly remind the man that this new de-

sign of spade is so much better, or perhaps convince him to buy a rotovator which he doesn't really need. Or does he?

BUT YOU HAVE THE POWER

If the average home computer buff took time out to consider what advantages could be gained from a real computer doing real jobs around the house, then the world of computer supply and demand might change out of all recognition. At the moment two or three main manufacturers graciously make available some gaudy boxes containing what they think home computers should be and, whilst people just drool and buy them, that's what will always happen.

In an age where we have finally learned that telephone wires are slow, noisy and expensive, and that satellites are faster and much better, we have learned that with the right rip-off, monopolistic marketing, satellites can still be as expensive. It seems incredible that the home buffs are still typing programs in from magazine pages instead of downloading via satellite but modems and phone bills are expensive and this is such a shame for the home user because communicating with other computers is a whole new world.

If manufacturers of CB and computers amalgamated their resources and produced a range of compatible items then a fair compromise world of effective and cheap data transmission could begin. Home computers modemed onto airwaves could allow anything from chess games across a housing estate to message relaying across Europe by public spirited colleagues, providing repeater facilities.

Bolt on goodies for computer could even include car servicing/diagnostic programs and hardware. A simple black box which connects to a computer and to the car's diagnostic socket would be useful, fun and probably profitable for a firm with the courage to make them.

THE EDUCATION MYTH

Lots of people will say they use their computers for 'education' but what about real educational packages. GREER's GCE 'O' Level Maths for example is available as a book but not on a disk. As software in a computer, with search facility, as student could find all references to, for example, quadratics, in a flash. Workings and answers could be checked contemporaneously against the model results. Simple analysis routines could give advice and identify common error-trends for a particular user. A book can't do this!

Even a 'real' 32 bit computer with two or three fairly future-proof, really big hard disk drives could provide a real font of knowledge for the family. To ensure sales of sufficient number, it would have to be far cheaper than any available today, and real mass production could do it. Any number of terminals could access it and one time, standard disks would contain the Encyclopaedia Britannica, Webster's Dictionary, the unified history of the world, all updated each day by a binary coded 'beep' from a satellite service received by radio. Also MSF or DCF77 would be received and the decoded atomic date/time signals would thus keep pace automatically with BST and GMT. Such computers would never actually be unplugged, their lowest state being 'standby'. All clocks in the house (supplied by the manufacturers with an interface socket) would be driven by the home computer. Houses would be built with parallelled computer sockets in each room.

Birthdays and anniversaries could be written in and be announced as they become imminent. The knowledge contained in such machines need not be 'peripheral' or scant. The database could be as good for business as for the home. All common knowledge concerning everything from gardening to plumbing, to rock climbing, to astronomy. More detailed versions of particular subjects could be available from stores. The world of games might change a little!

RUN THE HOUSE

A household could connect a number of security devices to an interface and, of course, the machine would then look after the house, requesting and announcing information about the day to day running of the same.

By the time such machines were on the market, some manufacturers would of course have made interfaces for the gas, electricity and phone utilities, sampling and measuring consumption rates and trends. One day, even kitchen cookers will either have interfaces or have computers in them. To date all they've had is an on/off timer! Of course, the same home computer could be interfaced to the hot water and central heating and sensors over the house would keep tabs on efficiency etc.

A terminal in the kitchen for updating the larder inventory and printing an up to date shopping list would obviously be available but inventories are only as accurate as the user provided data but there has to be a limit somewhere. Another interface or a discrete computer device could be installed in the bathroom. Fixed to the taps, it would sample the running of the ideal bath volumes and temperatures for all family members and it would then run ideal baths again and again. It could even cope with the kids' train set, forecast financial hiccups, keep separate and secure diaries for all the family, ring up the bank to check things now and then, automatically order flowers for birthdays, and cancel the papers for the holidays!

IT'S MOVING FAST

This technology is available today and is obsolete as I write. And yet there will be those who think that it's pie-in-the-sky. Far from it. Many homes have more than one TV, so why not more than one computer. One in the garage connected to the family car's pressure points and running a software workshop manual could make car servicing fun, accurate, simpler and quicker. Already large fleet owners 'sample' the vibrations in their engines on a weekly basis and print a spectrum of peaks. If the trace begins to alter significantly, then trouble may be looming. The DIY owner could obviously do the same.

IT'S NOT HAPPENING

The fact is that already in this age of computers, both user and manufacturer have been brain-washed and pigeon-holed. Computers apparently have to be computer-shaped, and home computists have to either play games, write Basic programs (even both) and all home computers have to be 'owner only driver'.

In the big scheme of things we have gone

from pencil and paper to microprocessors within living memory and the graph curve seems to be exponential, so the advancements made in the next few years should far exceed those made in the last few. Something, however, seems to be slowing it all down - commercialisation. You limit what is available until everyone has got one and then you make it obsolete .... again and again.

GETTING NOSTALGIC!

In comparison with what could and should be in the average household, the PC is an anti-magnetic compass and the 800XL a clockwork bicycle lamp! I wrote this on an 800XL however, fighting off the well known Word Processing bugs in the Mini Office II adventure game. It's a nice little keyboard, and while it still works I remain quite attached to it - we've been through a lot together. But isn't this incredible, already there is nostalgia in this 'new' world of computers, people reluctant and resistant to change. Technology has to wait whilst people first believe the concept, then accept the existence, then wait until someone else buys one (whatever it is), then buy the 'improved' version for the kids at Christmas, only to be gob-smacked in January when the new model is introduced. Technology waits on the researchers shelves because what matters at the end of the day is profit - not computers.

DEALERS IN CONTROL

The motor car world has clearly defined demarcations. Autocar magazine is for people who like to look at, drool over, and read about new cars. Classic Car is for nostalgists who want to restore older cars in preference to this 'modern rubbish'. Practical Car Mechanics is for those who have to, or want to mend or improve their own car. The workshop manual is for the serious mechanic who makes his living from repairing cars. The computer world has not yet developed this far.

Computer magazines are mostly for people who want to write and read about games, games and more games and for people who want to read and write beginners' guides to reading magazines about the machine code in magazines games. There is no equivalent 'mechanics' magazine because the industry is still too busy ripping off 'users' by insisting that only very clever franchised dealers can mend computers. No nostalgia/ restoration magazines yet either - old computers never die, their owners just buy a PC. Has anyone out there got any idea where to get a workshop manual for their computer, disk drive or printer? Will the day ever dawn when your dealer will look up a part for you and 'get it for next Tuesday' - just like a head gasket for your 1959 Mini?

Software pop-up menus, and calculators are a bigger joke! Why should a computer only have the ONE screen? A standard format could be at least two main screens of the same size, and three little screens down each side, each with a number of keypads and essential control keys. Then, calculators, clocks and menus could always be displayed and controlled by only slightly different software and architecture. It is surprising also that not many computers have more than the odd 'power' LED. The Hi-Fi and Video world have millions of flashing lights and it would be nice to see a few indications of what was going on inside your computer, what the printer port was doing, how the CPU talks to the RS232 etc.

Modems, complete with phone and dial; pad, TV modulator, RGB out, video out, RS232, MIDI, real-world mains switches, TTL BCD in/out, clocks and a discrete calculator could ALL be built in as standard equipment or be available as plug-in options on all computers. In cars we take so much more for granted now - we just wouldn't accept 5 wheels and tyres to be an optional extra! The onboard computers in some cars put the 800XL to shame!

Home printers are noisy and a lot can't cope with envelopes, and labels are a pain. Consider that standard pin-matrix 'moving' head. Very simple but very noisy. With a little research and development a stationary head at least one whole line wide could be developed. Cheaper than a laser and up to 135 times quicker! Disk drives are improving but nothing like the way TV sets, video cameras or cars have done in the same time span.

If manufacturers and users alike just woke up to what a good computer and a good real-world interface with some inventive software can do - not just games and painting screens with electronic tartan - then maybe more good computers would be available and more people would buy them. Then we would need a parts and accessories and repair service at least equal to a BMW dealership and this may be a beginning.

COMPUTERS FOR EVERY NEED

Next should come computers that gifted amateurs want. Electronic hobbyists would love a machine that could display a digital storage triple-beam oscilloscope on one screen whilst printing voltages on another, and drawing the circuit on yet another.

The TV/audio servicing industry would like computer controlled/sampled dummy substitute circuit boards which could mimic suspect boards. This would keep a small hardware/software firm in business, but only if new generations of computers have more imaginative access to outside hardware. What about a 'Meccano' kit of motors, servos and girders etc., complete with software, for various popular computers for instance? Schools would buy them and with the right hardware and interfacing the physical result has no theoretical limit.

WE'RE WASTING TIME

Sir Isaac Newton once spoke of himself as having been as a small boy wasting time playing on the beach with shells and pebbles while the main task - the ocean of truth and all its tides, motions and secrets - was there 'undiscovered' before him. This is where the computer industry is now, the final destiny of home computing cannot be foretold now but surely there is more to life than Space Invaders?

At the time of writing some manufacturers do indeed offer more than a bog standard computer. The overriding point must be that in the whole computer field, prices must drop across the board and more and more accessories must be available, again at reasonable prices. The home computer market should be a buoyant and healthy supply and demand market and cease to be the closed-shop rip off that it is. ●

If you have feelings on the future of home computing why not write to Mailbag?

ST PUBLIC DOMAIN



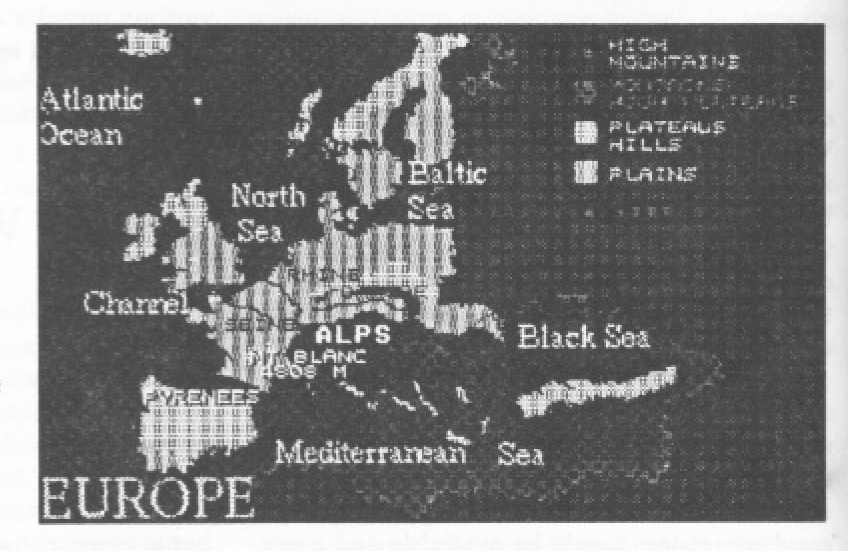
ROUNDUP

TRAVEL WITH YOUR ST

If you are considering a geography program for your ST then check out **ST GLOBE**, a complete geography package originally released in French but now almost completely translated by the author himself.

ST Globe features 23 colour-coded maps which can be pulled up from an easy to use menu system. The maps include a comprehensive world atlas, earth geography, international organisations, languages, religions, colonies and vegetation. Each is nicely drawn and labelled.

Data is available on each country (capital, money, surface, population, language, etc.) and graphical comparisons can be made with any of up to ten countries. You can even get the program to identify the location of a country on the world atlas. A database option is included which lists off all the stored statistics. The Big Cities menu gives information on many of the worlds' major cities. Finally, a quiz game is available to test you on capitals and countries.

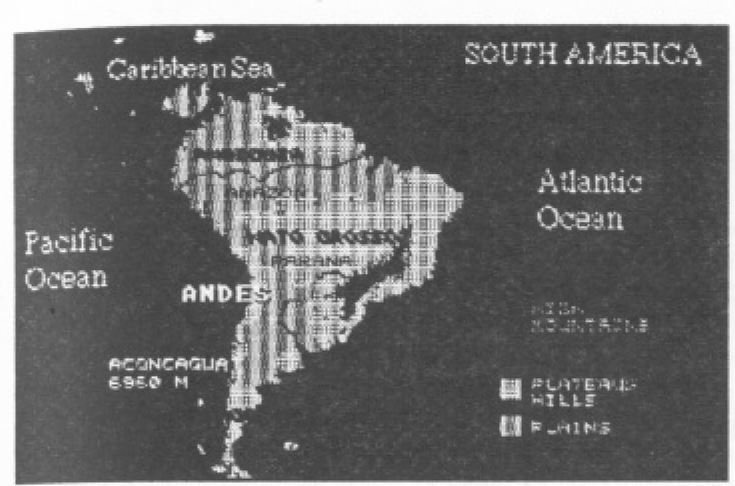


by Stuart Murray

ST Globe is a superior educational package. There is an excellent title picture and presentation is generally good throughout. Unfortunately, some of the more detailed maps are difficult to read (on my 14" TV anyway!).

This is a shareware version so around 20% of the options are disabled. However, you can still cruise around most of the world from the comfort of your own office chair (comfort!?).

The major factor with any geography program is the year it was written. Obviously, information in this field can date rapidly. Thankfully, this version of ST Globe (7.06) was written in 1994 and as such is pretty much up to date. There are a few oversights and some changes to the maps but nothing to make you reach for the off switch. Anyway, by sending £5 to the author you get the latest version with all options enabled. He even offers a disk-for-disk swap if you send him a list of your PD software.



Having been translated from the French version there are a few words which slipped through the net, e.g. Edinburgh is titled "Edimbourg" but everything remains easy to follow. There are 1/2MB and 1MB versions on the disk so the program is accessible to anyone who owns a decent computer.

Get your hands on ST Globe and your old outdated atlas can gather dust on the bookshelf.

BOARD BATTLES!

MEDIEVAL CHESS (1MB required) is an arcade version of chess. Most of the rules of chess apply although some have been changed, e.g. check-mate does not apply. The objective of Medieval Chess is to defeat the King in combat!

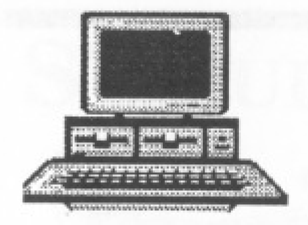
Upon loading, the game board appears and a scroll opens. It is here that you set the game options: number of players, colour of opponent and difficulty of computer. When the game options have been selected battle commences! You move your pieces with the aid of a cursor. They then walk to the desired square. If you wish to take one of your opponents' pieces you must first defeat it in battle. Here the screen changes to a battlefield where both pieces fight to the death. Different pieces have different weapons, speed, strength, damage capacity, etc. so choose your battles wisely.

The board and pieces are well drawn but everything is very 'blue'. It takes a while to get used to the design of the pieces. Animation is jerky on both the board and battlefield. This is a pity because all other aspects of the gameplay are well designed. Digitized sound effects are used everywhere and create the atmosphere of medieval warfare.

Medieval Chess successfully bridges the gap between strategy and arcade action and makes a nice change.

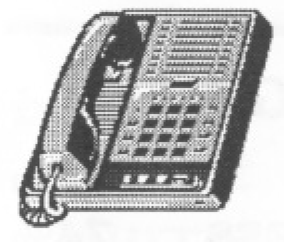
ROUNDUP RATINGS:

ST984 ST GLOBE	**87%**
ST990 MEDIEVAL CHESS	**74%**



JOURNEY INTO CYBERSPACE

John S Davison tackles the Internet in an ultimate quest for the fabled Information Superhighway



The next stop on our journey into cyberspace is to find out how you get your hands on the millions of files stored all over the Internet - files which contain data or programs on almost any subject imaginable. The good news is, they're free to anyone for the asking.

The bad news is, I've not been able to gain access to the required Internet file retrieval functions (known as File Transfer Protocol, or simply FTP) from my Atari systems. I thought CompuServe would be able to provide an ASCII interface as they do with some other Internet applications, but when I dialled in from my ST I was told I could only access FTP via CompuServe's own PC or Apple Macintosh based software.

I've heard that service provider Demon Internet (call 0181-371-1234 for details) can supply a suitable ST software package that handles FTP, but to get it you have to sign up with them for Internet access, so I wasn't able to try this. This article is therefore based on my experience gained using a PC rather than an Atari, and is provided for completeness in our coverage of Internet applications. If anyone reading this has experience of using FTP from any Atari machine please contact me at the e-mail address shown at the end of this article.

ANY COMPUTER ANYWHERE

The FTP program may be a stand-alone program, or a function incorporated into another Internet application program. Basically, FTP provides a method of downloading files from a remote system to your machine via the Internet. It doesn't matter where the remote system is - it can be anywhere in the world. The make and type of computer aren't important either - the remote system doesn't have to be the same as yours. As long as you and it are both attached to the Internet you can perform a file transfer.

Thousands of organisations, institutions, companies, and even individuals around the world choose to set up their computers as "FTP sites" and share their files with anyone interested in accessing them. I guess this originally started way back when the main users of the Internet were universities - it was a fairly painless way of making research papers available to others in their academic community. Nowadays, it's not just academic material sitting out there. Name a topic and you'll find at least one file on it somewhere. Files can contain virtually any type of material - if you can store it on a computer you'll find it on an FTP site somewhere - text, graphics, photographic images, MIDI files, sampled music, video, program code - it's all out there somewhere. It includes lots of shareware and public domain software too, so it's like having free access to the world's biggest public domain library. There is a tiny problemette though - how do you locate "somewhere"? How do you find out where to look for a file if there are thousands of FTP sites containing millions of files scattered all over the planet?

One way to start is to buy one of the many Internet books or magazines now widely available and look up topics and associated FTP sites in the catalogue they often include. You can then key the site address into your FTP program and go straight to it. When you get there you'll have to log in, normally by using the id of "anonymous" and giving your e-mail address as the password. For obvious reasons this type of site is known as an "anonymous FTP site", which basically means it's open to the public. Some sites are private, so you have to be a registered user to get in. Access here involves the use of a personalised id and password, issued by the owner of the site. Companies often have their own private FTP sites, with access restricted to its employees only. Often these are on the companies' own private networks too, so aren't even reachable via the public Internet.

ASK ARCHIE

There are various tools available on the Internet to help you locate files. One is called "Archie", which is supposed to be an index to all FTP files in the Internet. There are a number of Archie servers around the world, and each night between them they index one thirtieth of the FTP files on the Internet (don't ask me how!), so in a month the whole Internet has been covered. You can access an Archie server and search for a file (by name or part name) and it will tell you where matching files are located. There's also a keyword database which works with this, allowing you to search by topic.

However, for various reasons not all FTP sites are covered by Archie, and the keyword database isn't as good as it might be. There's a UK Archie server at Imperial College in London, and you can use it via e-mail or log into it directly using "telnet" (the standard Internet way of logging into a remote machine from your own). Send an e-mail message to **archie@doc.ic.ac.uk** and it will e-mail details



back to you on how to use it. Alternatively, you can telnet into archie.doc.ic.ac.uk and control the search directly. You can even get to it via the World Wide Web at **http://src.doc.ic.ac.uk/-archiplexform.html**. Note - we'll be covering telnet and World Wide Web in a later article.

Another tool is "Gopher". This was designed by the University of Minnesota as an easily used tool for locating files on the Internet, and is so called because it "goes for" information you request. The university's football team are also called the Gophers, another reason for the choice of name. As with Archie there are a series of Gopher servers attached to the Internet. You can access a Gopher via a separate Gopher client program running on your system, or directly via telnet, or possibly via one of the service providers. You navigate through "gopherspace" using a series of menus, some of which may transfer you from the current server to other Gopher servers. Searching through all the menus can be a bit tedious so an additional tool has been added to search through all the gophers for you. This is known as Veronica (Very Easy Rodent Oriented Netwide Index to Computer Archives) - in reality I'll bet this was really named after someone's girlfriend.

FTP VIA COMPUSERVE

My way into FTP is via CompuServe using their own WinCIM software on my PC. This allows you to dial in, then quickly navigate to the FTP section with a few mouse clicks. Once there you can select from a number of popular FTP sites CompuServe have already listed (e.g. IBM, Apple, Microsoft, Sun) and go straight to them. Or, if you know the address of another specific site you can key it in and the software will connect you to it. Once there, it's a case of exploring the directory structure you're presented with - it's just like navigating round the directories on your own disks. If you find files you want to download you just click on them to mark them for retrieval, then click on the retrieve button and wait for them to download to your own system. It's easy - with the right software. To help with searching you can also get easy access to the University of Minnesota's Gopher server via CompuServe's telnet facility.

In some ways all this is becoming outdated now, as many of the functions seem to have been taken over by the World Wide Web (WWW), the "killer" Internet application which is fuelling the current explosive growth in Internet usage. Several of the items we've covered in this article are accessible via the WWW, and the software functions are usually integrated together in the WWW browser software you run on your system. WWW is a big topic in its own right, so I'll cover it in its own article later.

NASTY ACCIDENT!

In this issue I was planning to publish a list of names and e-mail addresses of NAU readers who've contacted me via the Internet and would like to communicate via e-mail with other NAU readers. However, a nasty accident occurred on my PC recently, which has temporarily delayed this. The story also carries a self evident moral, so take heed!

I recently had a well known company upgrade my PC with an additional one gigabyte hard drive. During the process they "accidentally" destroyed my original C: drive, effectively wiping out half a gigabyte of software and data. Was I pleased! Luckily I'd taken recent backups of all the critical data (or so I thought), and still had the original disks for all the software. I spent ages rebuilding the system from these, but when it was all up and running again I discovered I'd forgotten to back up two essential data files - my e-mail address book and message archive. When people contact me via e-mail their address goes straight into the address book, and I don't keep a separate hard copy. Unfortunately, the message archive containing the original messages with the addresses on them was also gone, so I couldn't even retrieve them from there. Over 150 addresses lost! Arrggghhh!!!!

I eventually found an earlier version of the address book on an older PC I still have, so I managed to retrieve about half of the entries, but the rest are gone. The point of telling you all this is that my NAU contacts were amongst those lost, so would all you good folk out there who've e-mailed me over the last few months (Ann O'Driscoll, John Young, Bryan Zillwood, Joel Goodwin, amongst others) PLEASE get in touch again soon so I can include you in the list. Also, I'd welcome e-mail from anyone else who's not been in touch yet. My Internet e-mail address is

100256.1577@compuserve.com

(or 100256,1577 from within CompuServe)

❁ ❁ ❁ ❁ ❁ ❁ ❁ ❁ ❁

256 COLOUR SCREENS

Following on from his 128 colour routines last issue Andy Guillaume shows how to use the full 256 colour pallette

This program shows just how easy it is to create the famous 256 colour screen used in programs such as Technicolour Dream.

We begin by setting up a Graphics mode 9 screen. A DLI is set at the top of the screen which, using GPRIOR (623) and PRIOR (53275), sets Graphics mode 9 (16 shades) and Graphics mode 11 (16 colours) on alternate lines down the entire screen height. A Pseudo-Colour (PC) is then created by plotting a pixel of the required Colour on one of the colour lines and a pixel of the required Luminance on the subsequent luminance line. This fools the eye into thinking the pixels merge and you see the PC rather than the individual colour and luminance pixels.

Have a look at the DLI code to see how this works. GTIA modes can be set using the top 3 bits of GPRIOR. GPRIOR is EOR'ed with 128 every scan line causing the switch in graphics mode. X is incremented and the routine loops until all the lines are used.

The colours and luminances both range from 0 to 15 so this gives 16*16 = 256 colours. A PC is within the range 0-255, the colour number to plot is thus PC DIV 16 and the luminance to plot is PC MOD 16. The colour lines range from 0-191 in steps of 2, and the luminance lines from 1-190 in steps of 2. This gives a resolution of 80 across by 96 (192/92) down.

To plot a given PC use the above formulas to work out the Colour and Luminance numbers, then multiply your Y position (0-95) by 2 to give the correct screen line. Plot a pixel of COLOR colour. On the next line (Y+1) plot a pixel of COLOR luminance.

RUNNING THE PROGRAM

Type in and save the main program (TFS.BAS). This is the core routine and sets everything up. The DLI code is POKEd in and the screen and DL set up. The two demo programs show how to use the 256 PC Graphics mode. You should type NEW after saving, then type in each program in turn and save them in listed format e.g. LIST "D:TFSPALL.TFS". Now re-load TFS.BAS and merge the required routine i.e. ENTER "D:TFSPALL.TFS" and Run.

There are two different routines provided.

TWO FIVE SIX COLOUR PALETTE (TFSPALL.TFS) - Draws the 256 colour palette!! 16 by 16 blocks of colours

RANDOM COLOURED BLOCKS (RANDCOLS.TFS) - Draws randomly sized and coloured rectangles on the screen.

```
EX 1 REM ################################
VQ 2 REM #      256 COLOUR SCREEN       #
SG 3 REM #      by Andy Guillaume       #
HB 4 REM # ---------------------------- #
MF 5 REM # NEW ATARI USER - JAN 1996    #
FC 6 REM ################################
NM 7 REM
FE 10 REM  Setup DLI
NO 20 DLI=1536
SH 30 IF PEEK(DLI)=72 THEN 70
ME 40 FOR A=0 TO 22:READ B:POKE DLI+A,B:N
   EXT A
VX 50 DATA 72,138,72,162,192,173,111,2,73
   ,128,141,10,212,141,27,208,202,208,245
   ,104,170,104,64
KK 60 REM  Setup Screen
QI 70 GRAPHICS 9
LG 80 SCN=DPEEK(88):DL=DPEEK(560)
ZU 90 POKE DL+%2,240
SP 100 DPOKE 512,DLI:POKE 54286,192
```

The Set-up routine

```
BU 1000 REM  256 Colour Palette
KO 1010 COL=%0
PO 1020 FOR Y=%0 TO 95 STEP 6
PV 1030 FOR X=%0 TO 79 STEP 5
BV 1040 PC=COL DIV 16:PL=COL MOD 16
VT 1050 FOR SY=(Y*2) TO (Y*2)+10 STEP 2
IR 1060 COLOR PC:PLOT X,SY:DRAWTO X+4,SY
EX 1070 COLOR PL:PLOT X,SY+1:DRAWTO X+4,S
   Y+1
YV 1080 NEXT SY
KX 1090 COL=COL+%1
LA 1100 NEXT X
LO 1110 NEXT Y
OI 1120 GOTO 1120
```

Two example routines -

above - the full 256 colour pallette

below - a random effect of different coloured blocks

```
GT 1000 REM  Random Blocks
FE 1010 COL=RAND(16):LUM=RAND(16)
EQ 1020 WID=RAND(20):HEI=RAND(20)
NN 1030 X=RAND(80-WID):Y=RAND(96-HEI)*%2
WK 1040 FOR I=Y TO Y+HEI STEP 2
LW 1050 FOR N=X TO X+WID
FD 1060 COLOR COL:PLOT N,I
VT 1070 COLOR LUM:PLOT N,I+1
HQ 1080 NEXT N
FQ 1090 NEXT I
ND 1100 GOTO 1010
```

continued 

SAVING SCREENS

If you write a program similar to Technicolour Dream you might want to save and load various screens. The procedures are quite straightforward using Turbo Basic.

To save a graphics screen, just get the starting address i.e. DPEEK(88) and the length (40 bytes*192 lines =7680 for Graphics 9), open a file and BPUT the data.

```
2000 SCN=DPEEK(88)
2010 OPEN #1,4,0,"D:FILE.PIC"
2020 BPUT #1,SCN,7680
2030 CLOSE #1
```

Loading is just as easy, you just substitute a couple of commands

```
3000 SCN=DPEEK(88)
3010 OPEN #1,8,0,"D:FILE.PIC"
3020 BGET #1,SCN,7680
3030 CLOSE #1
```

```
10 ;256 Colour DLI
20 ;By A.Guillaume
30 ;May 1995 for NAU
40 ;
50 GPRIOR=623
60 PRIOR=53275
70 WSYNC=54282
80 *=1536
90 DLI
0100  PHA          ;Push A
0110  TXA          ;X into A
0120  PHA          ;Push A
0130  LDX #192     ;192 into X
0140  LDA GPRIOR   ;Get GTIA mode
0150 LOOP
0160  EOR #128     ;Switch mode
0170  STA WSYNC    ;Wait for sync.
0180  STA PRIOR    ;Set GTIA mode
0190  DEX          ;Decrement X
0200  BNE LOOP     ;Loop if X not 0
0210  PLA          ;Pull A
0220  TAX          ;A into X
0230  PLA          ;Pull A
0240  RTI          ;Return from DLI
0250 .END
```

BRIGHT SCREEN

by Sue Donym

Here's a neat little enhancement for your Graphics 0 screens. If you like a bold and bright background to your text, give it a try.

```
JV 0 REM WRITTEN BY SUE DONYM (C) AURA
HM 10 GRAPHICS 0:POKE 559,0:FOR I=1536 TO
   1552:READ A:POKE I,A:NEXT I
NZ 20 X=PEEK(560)+PEEK(561)*256:POKE X+2,
   240:POKE X+3,194
GS 30 FOR I=6 TO 28:POKE X+I,130:NEXT I
MT 40 POKE 512,0:POKE 513,6:POKE 54286,19
   2:POKE 559,34
YW 50 DATA 72,173,11,212,141,10,212,141,2
   4,208,73,11,141,23,208,104,64
```


contact ... contact ... contact ...

FOR SALE

XL SYSTEM: 800XL (boxed), 1010 cassette player, 1050 disk drive (boxed), 600XL; plus all power and data cables, a few games and books. Price £90.00, buyer collects. Tel. Chris Curtis on (01908) 607479 evenings (Milton Keynes)

PRINTER: 1029 printer boxed with manual, leads etc. As new, £40. Tel. 0191 2512977

MAGS: Various magazines for sale or swap - Atari User, Page 6, Monitor, Antic, Analog. Tel. Karl on 01226 210149

XE SYSTEM: One Atari 130XE computer, XC12 data recorder, 2 x 1050 disk drives both fitted with US Doubler/ Happy chip (switchable) and write-protect switch, spare power pack and lots of software. £150.00 o.n.o. Tel. Dave on 01903 830259

XL SYSTEM: 800XL, 1027 letter printer, 1050 disk drive, 14 boxed games, joystick, 22 Page 6 magazines, 95 disks some with games on. All documentation and in original boxes. £60 the lot. Tel. (01604) 881265

WANTED

SOFTWARE/MANUALS: Wanted - Technical Ref. Notes, service manuals, De Re Atari, The Home Accountant, Book Keeper. Write to Karl Smith, 80 Blythe Street, Wombwell, Barnsley, South Yorkshire S73 8JF

FINANCE PROG.: Has anybody got a working copy of the FINANCE program from Page 6 Disk #12 'Home & Business'? The catalogue states that it is in BASIC A which, to me doesn't seem any different to Atari BASIC but as fast as I correct one error another appears. Please write or phone. Dennis Fogerty, 15. St. Martins Close, Barford St. Martin, Salisbury SP3 4AX. Tel. 01722 744162

HELP

TECHNICAL HELP: Can anyone point me to a timing diagram of the DATA and relevant control/ command signals from the SIO socket on the rear of the XL/XE during the passing of data to a printer? I want to interface onto the machine and I am finding it rather difficult. I have both the SAM manual and the 800XL service manual neither of which help. Please contact Peter Lane, 51 Washington Drive, Newtoft, Market Rasen, Lincs. LN8 3NW. Tel. 01673 885546

PC XFORMER USERS: I am still waiting for my SIO2PC cable but I want to get in touch with others to swap PD, hints, tips and so on. Please write to DELELIS Christian, 321, rue Leon Blum, 62232 ANNEZIN, France

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Certain program listings which are too long to include in the magazine may be obtained free of charge as printed listings to type in. All programs are, however, included on the Issue Disk which is available with each issue. Remember this disk also includes BONUS PROGRAMS which do not appear in the magazine. If you would like the type-in listings please write or telephone indicating which listings you require. Please note that there are not necessarily extra listings for every magazine.

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